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Human Nutritive Requirements and Recommended Dietary Allowances[1]

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NUTRITIVE requirements depend on many factors, of which age, sex, body size, and physical activity are of predominant importance. Requirements are increased by physiologic stress, that is, by growth, pregnancy, and lactation and are also elevated in many disease states. Knowledge of requirements for energy and for specific nutrients—protein, minerals, and vitamins—has increased markedly in recent years but is still far from complete. Minimal requirements, or the smallest quantities which will prevent the development of deficiency disease, have been determined for a number of essential nutrients. However, little is known about optimal needs although many studies in animals, as well as investigations in man, indicate an improvement in growth and function when the intake of certain nutrients is increased above minimal levels.

As information on nutritive requirements has accumulated, dietary standards have been formulated by national and international groups for planning and evaluating food supplies for individuals or population groups. These standards have varied in underlying philosophy and objectives and hence in specific recommendations. Until recently, most of the standards have dealt almost exclusively with minimal requirements. When the Food and Nutrition Board of the National Research Council first accepted responsibility for development of a dietary standard for the United States, it seemed preferable to formulate allowances suitable for maintenance of good nutritional status rather than allowances just sufficient to prevent manifest deficiency disease. The Recommended Dietary Allowances of the Food and Nutrition Board (1) were so named "to avoid any implication of finality, or of minimal or optimal requirements," and they represent "exactly what is implied in the literal interpretation of the words *recommended dietary allowances*." The Allowances have been revised twice since original adoption in 1941 and are at present under critical review. No change in general principle or objective is currently contemplated, although some changes may be made in recommendations for specific nutrients.

[1] Presented at the 35th Annual Meeting of The American Dietetic Association in Minneapolis, on October 21, 1952.

PURPOSES OF ALLOWANCES AND STANDARDS

In interpreting the Recommended Dietary Allowances, it should be understood that they indicate levels of nutrient intake which appear to be desirable goals toward which to strive in planning diets and food supplies. The allowances are high enough "to cover substantially all individual variations in the requirements of normal people" and include a margin of safety above the critical or minimal level of each nutrient to "permit additional benefits." The nutritive intakes recommended are, in general, higher than average requirements and lower than the amounts needed in pathologic states or in rehabilitation following depletion. The margin between "minimal requirements" and "recommended allowances" varies among the essential nutrients and in the several population groups for many reasons. These include: variation in the capacity of the body for storage of specific nutrients, the extent of variation in individual need, and findings in long-term animal experiments which indicate a wider margin between minimal requirement and optimal intake for some nutrients than for others. Surplus intakes of certain nutrient factors may be undesirable; the unquestioned example of this is ingestion of a diet of excessive energy value which induces obesity with its attendant hazards.

The Recommended Dietary Allowances were not formulated to provide a basis for judging the nutritional status of populations, but rather to serve as a guide for planning food supplies for population groups. In evaluating diets of individuals or groups with this dietary standard, it should be emphasized that persons whose consumption equals or exceeds the goals are presumably adequately nourished but not all persons who fail to reach the goals are malnourished.

The dietary standards proposed by the Committee

on Nutrition of the British Medical Association represent "the caloric estimates and quantities of various nutrients" which "are believed to be sufficient to establish and maintain a good nutritional state in *representative individuals*" of population groups (2). They are planned for the average person, while recognizing that some members in every group may need more than the average. Thus, the British standards, while basically similar in principle to the Recommended Dietary Allowances of this country, do not provide for coverage of all individuals.

The dietary standard for Canada differs considerably in purpose and philosophy from the American and British recommendations. The Canadian standard "is recommended as a scientific basis for planning food supplies for individuals or groups," for use in assessing the amount of each nutrient provided by a diet for an individual or group in terms of *probable physiologic requirement*, and may "be used to indicate a *nutritional floor* beneath which maintenance of health in people cannot be assumed" (3). The provision of an excess supply of nutrients is considered to be "undesirable—in view of the urgent need for food in many parts of the world." In the Canadian standard, recommendations are based upon body size, and the influence of work on requirements is emphasized.

In view of the differences in purpose and underlying philosophy between the British, Canadian, and American dietary standards, it is obvious that specific recommendations will differ considerably. In Table 1, recommendations for a sedentary man weighing 154 lb., as proposed in the three standards, are compared. The most striking difference is the much lower recommendation for ascorbic acid in the Canadian and British standards than in the Recommended Dietary Allowances of this country. The recommended intakes for the B vitamins and for calcium are also lower, especially in the Canadian. The recommended intake of vitamin A is lower in the Canadian than in the other standards, since the recommendation is made in terms of carotene, rather than in terms of a mixed diet furnishing vitamin A as ⅔ carotene and ⅓ preformed vitamin A. The recommended intake of iron is also lower in the Canadian standard. These differences are in line with expectations since the Canadian standard is a nutritional floor and approaches minimal requirements. The British standard is an allowance for maintenance of good nutrition in the average person, and the United States allowances are designed for maintenance of good nutrition of substantially all normal persons and include a margin of safety.

TABLE 1

Comparison of United States, British, and Canadian dietary standards for a sedentary man, weighing 154 lb.

NUTRIENT	U. S. STANDARD	BRITISH STANDARD	CANADIAN STANDARD
Calories	2400	2250	2476
Protein (gm.)	70	66	67
Calcium (gm.)	1.0	0.8	0.7
Iron (mg.)	12	12	6
Vitamin A (I.U.)	5000	5000	5000
Thiamine (mg.)	1.2	0.9	0.75
Riboflavin (mg.)	1.8	1.4	1.2
Niacin (mg.)	12.0	9.0	7.5
Ascorbic acid (mg.)	75	20	30

CALORIES

In any consideration of calories, one additional standard should be discussed, namely, that proposed by the Committee on Calorie Requirements of the Food and Agriculture Organization (FAO) of the United Nations (4). This standard was developed "to promote practical guidance" on the requirement of populations and population groups and to assist in comparison of caloric levels in different parts of the world as shown by dietary surveys or estimates of food supplies. The method defines a "reference" standard to which is assigned a numerical value for caloric requirement. The reference man and woman are twenty-five years old, in good health, and consume a well balanced diet. They live in the temperate zone at a mean external environmental temperature of 10°C. The degree of activity of the man is that involved in occupation in light industry. Further definition of these reference standards is given in Table 2. The mean caloric requirements on a year-round basis are considered to be 3200 for the man and 2300 for the woman, which do not differ greatly from those proposed for the "physically active" man and "moderately active" woman in the Recommended Dietary Allowances. The FAO committee has indicated the manner in which caloric requirements may be modified for body size, for age, and for mean environmental temperature as shown in Table 3. The caloric requirements assigned to children from six months to sixteen

TABLE 2

Reference standards for estimation of caloric requirement as proposed by Committee on Calorie Requirements of the Food and Agriculture Organization of the United Nations

FACTOR	REFERENCE MAN	REFERENCE WOMAN
Weight	65 kg.	55 kg.
Age	25 yr.	25 yr.
Mean environmental temperature	10°C.	10°C.
Activity	8 hr. physical work 4 hr. sedentary activity 5–10 km. walk	general household tasks care of small children 5–10 km. walk
Calories	3200	2300

years of age are those given in the Recommended Dietary Allowances of the National Research Council.

It is anticipated that the system of analysis proposed by FAO for computing caloric requirements will be discussed in the next revision of Recommended Dietary Allowances. This method should prove useful as a detailed guide for group planning and for computing area requirements in different countries.

In the Canadian standard, calories for adult maintenance (inactive existence) are calculated from the formula:

$$\text{Calories} = 93\ (W_{kg}^{0.75})$$

where W is body weight. To this maintenance requirement, calories are added for several degrees of work, and for pregnancy and lactation. Thus, both the FAO and Canadian recommendations relate adult caloric needs to body size, with weight as the reference unit. The chief difficulty in using body weight as the major criterion for estimating caloric allowance is its inaccuracy as a measurement of proportions of the body components, especially of fat and muscle. Simple methods for estimation of body fatness are being developed, such as determination of thickness of subcutaneous fat (skin folds), but normal values are not available as yet. There are likewise insufficient data on "ideal" weight of various population groups. In addition, much more information is needed relative to caloric requirement in occupational and nonoccupational activities.

In the British table of caloric allowances for adults, the amount of energy required for ordinary living, apart from any special form of physical activity, is estimated to be 2200 calories daily for males, 1800 for females. For computation of total energy needs, six work categories have been designated for men and five for women. In the United States standard, calories are expressed in three categories of activity for men and women of average size, with the suggestion that modification of plus or minus 15 to 20 per cent may be necessary and that due account should be taken of the concept of "ideal weight."

TABLE 3

Formulas for adjustments for calculating caloric requirements from FAO reference standards

ADJUSTMENT	FORMULA
For body size	
Men	$E = 152\ (W)^{0.73}$*
Women	$E = 123.4\ (W)^{0.73}$*
For age	Decrease 7.5% for each 10 years beyond age 25
For mean environmental temperature	
For each 10°C. increment	Decrease 5%
For each 10°C. decrement	Increase 5%

* E = total caloric requirement; W = weight in kilograms

PROTEIN

The protein allowances recommended for adults in the United States standard are based on 1 gm. protein daily for each kilogram of body weight. This amount is approximately 50 per cent more than the average required for maintenance of equilibrium in over one hundred nitrogen balance experiments. The allowance is sufficiently generous to provide for differences in the biologic value of proteins in normal diets, as well as for variation in needs of individuals. The Canadian standard relates protein requirement, as it does caloric needs, to body size and calculates requirement from the formula:

$$\text{Protein}_{gm} = 2.75\ (W_{kg}^{0.75}).$$

Differences between the Canadian standard and that of this country, as far as protein is concerned, depend on whether protein need is related to body weight or to the three-fourths power of the weight. In persons weighing 55 to 85 kg., differences are small, but in the more extreme categories, they are rather large. If the Canadian viewpoint is correct, then the margin of safety in the Recommended Dietary Allowances varies with body size as Crampton has suggested (5). The intakes of protein recommended for the growth period are essentially the same in the Canadian and United States standards. The British committee has related protein need to the energy allowance and have suggested that the protein in the diet should provide 11 per cent of the energy allowance in adults and 14 per cent during growth, pregnancy, and lactation. It is emphasized that the British standards do not represent requirements but rather levels compatible with health and well being.

CALCIUM

There has been much discussion about the Recommended Dietary Allowance for calcium, namely 1.0 gm. daily for adults, which is considered to cover the needs of all but 1 in 100 members of the adult population. An extensive review of calcium requirements has been undertaken by a subcommittee of the Committee on Dietary Allowances of the Food and Nutrition Board. Findings will be awaited with interest. The present Canadian standard has assumed, with little experimental basis, that the calcium need is proportional to body weight. The British committee adopted a calcium recommendation of 0.8 gm. daily for adults which is the amount suggested in the 1945 revision of Recommended Dietary Allowances for this country.

VITAMINS

Although much information on vitamin requirements has accumulated in recent years, we do not

know whether requirements should be expressed per individual, per body weight, per active metabolic body mass, or per caloric consumption. There is some evidence that the proper mode of expression varies among the several vitamins. Knowledge of vitamin requirements has stemmed from animal studies, both short and long term, from the induction and prevention of experimental deficiency in man, from studies of biochemical changes in man including investigation of amounts of a given vitamin necessary for saturation of the body, and from epidemiologic and dietary analyses.

Vitamin A

Studies in eight species of animals (6) indicate a requirement for vitamin A of 4 mcg., or about 20 I.U., per kilogram of body weight per day (Table 4). If vitamin A requirement is supplied by carotene in food, almost five times as much is needed as if the requirement is met with preformed vitamin A. It has also been demonstrated that at least three times as much vitamin A is needed for storage in animals as for prevention of night blindness. In some species, five times the minimum level is needed for normal reproduction.

In early human studies in this country in which dark adaptation was the method of evaluation, it was estimated that requirement varied from 25 to 55 I.U. per kilogram of body weight or 2000 to 4000 I.U. daily (1). In England, a recent study of vitamin A deficiency indicated that the minimal protective dose was 1300 I.U. vitamin A daily (7). It was suggested that 2500 I.U. vitamin A would provide a satisfactory allowance for maintenance of good nutrition. If pure carotene was administered, 1500 I.U. daily was sufficient to prevent deficiency. If carotene was supplied by food, rather than as the pure substance, it was considered that at least three times as much was needed, due to variation in availability and absorption. The British committee suggested, therefore, that a reasonable daily allowance of carotene was three times that of vitamin A, or 7500 I.U. In both the British and United States dietary tables, the suggested daily allowance of vitamin A for adults is 5000 I.U., assuming a mixed diet which furnishes two-thirds of the vitamin A in the form of carotene. In the Canadian standard, a vitamin A intake of 72 I.U. carotene per kilogram of body weight is recommended. On this basis, adults of small body size and children would receive very much less vitamin A than that proposed in the American or British standards. For example, the recommendation for a one-year-old infant is only 700 I.U. carotene in the Canadian standard, but 1500 I.U. and 3000 I.U. vitamin A (two-thirds as carotene) in the American and British standards, respectively. Whether an intake of 700 I.U. carotene, daily, will maintain normal growth and a satisfactory light threshold is unknown. Certainly, with this meager supply, little vitamin would be available for storage and, as noted above, animal experiments indicate a need above the minimal level to permit normal functions in areas other than vision.

TABLE 4

Vitamin A requirement and recommended standards

SOURCE OF VITAMIN A	ADULT HUMAN BEINGS		
	Minimum requirement		Recommended standard
	*I.U./kg./day**	*I.U./day*	*I.U./day*
Preformed vitamin A			
United States	25–55	2000–4000	
Great Britain		1300	2500
Canada	18		
Carotene			
United States		4000–8000 (food)	
Great Britain		1500 (pure)	7500 (food)
Canada	72		72/kg. (food)
Mixed diet, supplying two-thirds carotene			
United States			5000
Great Britain			5000

* Studies with 8 species of animals have shown minimum requirements to be 20 I.U. per kilogram per day.

Thiamine

There is perhaps more specific information regarding the requirement for thiamine than for any other factor. Analysis of numerous experimental studies in adult humans (1, 8) suggests that the minimum requirement is 0.23 to 0.30 mg. per 1000 calories (Table 5). It has been shown that requirement is related to caloric consumption and may be relatively less as caloric intake is increased. The carbohydrate content of the diet influences the need to some extent. Since thiamine stores in the body are never large and may be exhausted early by diseases associated with elevated metabolism, or following surgery or other stress, an allowance of thiamine which is approximately 100 per cent more than the minimal requirement is suggested in the Food and Nutrition Board table. The minimal allowance for adults receiving diets of low energy value is considered to be not less than 1 mg. daily.

Information regarding thiamine requirements of infants is meager. Findings in two studies indicate that 0.14 to 0.20 mg. daily (9) and 30 mcg. per kilogram of body weight (10, 11) are sufficient to prevent evidence of deficiency. Human milk contains 0.22 mg. thiamine per 1000 calories, or 0.15 mg. per liter in women on a good diet. If the infant's daily intake is calculated from these figures, some infants receive only 100 mcg. daily and do not

develop thiamine deficiency. Allowances for thiamine proposed in this country are slightly higher than those suggested in Great Britain (Table 5). Minimal thiamine requirement is used as the Canadian standard.

Riboflavin

Investigations of riboflavin requirement in man (12) have indicated that clinical evidence of deficiency occurs when the intake is less than 0.6 mg. daily in an adult (Table 5). Studies of urinary excretion have suggested that an intake of 1.1 to 1.6 mg. daily will provide adequate body stores (12). There is clear evidence from experiments in rats that the need for riboflavin does not increase with caloric consumption as in the case of thiamine. The requirement appears to be related to body weight or some function thereof. In several species of animals, and in man, daily ingestion of 15 to 20 mcg. riboflavin per kilogram of body weight has been shown to prevent deficiency (1). On this basis, the daily requirement for a 56-kg. woman would be 1.1 mg., that for a 70-kg. man, 1.4 mg. The allowances suggested in the United States table are 1.5 mg. for the adult woman and 1.8 mg. for the adult man, allowing a margin of safety of about 25 per cent, in view of long-term studies in animals which suggest that benefits accrue from amounts larger than those necessary to fulfill minimum needs.

In animals, it has been shown that about twice as much riboflavin is required for growth as for adult maintenance. The meager information on human needs during growth is in line with this. In the Recommended Dietary Allowances, the provision for children under twelve years of age is about 60 mcg. riboflavin per kilogram of body weight, or a factor of safety of about 100 per cent.

Both the British and Canadian standards relate riboflavin allowances to calories (Table 5). Accordingly, there is considerable spread in values: for adults, some are lower and a few higher than the allowances of this country; for children, the differences between the standards are small; for pregnancy and lactation, allowances are lower than in the Recommended Dietary Allowances.

Niacin

The requirement for niacin depends not only on intake of niacin, but also on the amount of tryptophan in the diet since this amino acid is converted to niacin in the body. In the rat, niacin is an essential nutrient only when the tryptophan content of the diet is low, and under these conditions, the requirement is approximately ten times that of thiamine (13). From calculations of the niacin content of pellagra-producing and pellagra-preventive diets (14), it was considered that in human beings consuming a marginal diet containing corn products, the minimal niacin requirement is about 7.5 mg. daily (Table 6). In recent studies in adult women who were maintained on "wheat" or "corn" diets containing 200 mg. tryptophan, the minimal niacin requirement was found to be approximately 6 and 7 mg. daily, respectively (15, 16).

Studies of urinary excretion of niacin metabolites

TABLE 6

Niacin requirements

SOURCE OF ESTIMATE	NIACIN REQUIREMENT *mg./day*
Diet calculation for adults on corn diet	7.5
Human experiments using adult women	
Corn diet, including 200 mg. tryptophan daily	7
Wheat diet, including 200 mg. tryptophan daily	6
Animal experiments	10 times thiamine requirement

TABLE 5

Thiamine and riboflavin requirements and allowances

CATEGORY	MINIMUM REQUIREMENT	RECOMMENDED STANDARDS					
		United States		Great Britain		Canada	
Thiamine							
		mg./1000 calories	*mg./day*	*mg./1000 calories*	*mg./day*	*mg./1000 calories*	*mg./day*
Adults	0.23–0.30 mg./1000 calories	0.5	1.0–1.8	0.4 *or* 0.6 mg./1000 non-fat calories	0.6–2.0	0.3	0.45–1.55
Infants	0.14–0.20 mg./day *or* 30 mcg./kg./day*		0.4 (age, 1 yr.)		0.4 (age, 1 yr.)		0.3 (weight, 20 lb.)
Riboflavin							
Adults	0.6 mg./day		1.5–1.8	0.6	0.9–3.0	0.5	0.8–2.5
Infants	18–36 mcg./kg.		0.6		0.6		0.5

* 0.22 mg. thiamine per 1000 calories in human milk.

TABLE 7

Niacin recommendations

CATEGORY	RECOMMENDATION		
	United States	Great Britain	Canada
	mg./day	*mg./day*	
Adults	10–18	6–20	3 mg./1000 calories
Infants	4	4	3 mg./day

TABLE 8

Ascorbic acid requirements and recommendations

CATEGORY	MINIMUM REQUIREMENT	RECOMMENDATION		
		United States	Great Britain	Canada
	mg./day	*mg./day*	*mg./day*	*mg./day*
Adults	<10	70–75	20	30
Infants	<10	30	10	30

in subjects on "corn" diets of varying niacin content suggest that body stores may be adequate at levels of niacin intake between 6 and 10 mg. daily. Recommended allowances for niacin are shown in Table 7. In the British and Canadian standards, allowances for certain adults are lower than the minimal requirement suggested above. If sufficient good protein is not included in the diet, however, pellagra may occur on these levels of intake. On the other hand, if the diet is high in tryptophan, less niacin will be required than that suggested in any of the current tables. The relationship of human niacin requirement to body weight or to the energy value of the diet remains unknown.

Ascorbic Acid

There is more controversy about dietary standards for ascorbic acid than for any other factor. Studies in man, both in infants and adults, indicate that scurvy may be prevented by as little as 10 mg. ascorbic acid daily (Table 8). In an investigation of experimental ascorbic acid deficiency in Great Britain, slow healing of lesions followed administration of 10 mg. ascorbic acid daily, more rapid healing with 20 mg. The Recommended Dietary Allowances for ascorbic acid are much higher.

The basis for the apparently very large margin of safety may be summarized as follows: (a) In guinea pigs, although 0.5 mg. ascorbic acid daily will prevent classic signs of scurvy in young growing animals, abnormalities of tooth structure and slow wound healing persist until the intake reaches 3 mg. daily. Maximum phosphatase activity in wounds is not observed until the intake amounts to 5 mg. daily. Maximum resistance to injury by bacterial toxins likewise depends on high levels of intake. (b) In order to maintain a tissue concentration of ascorbic acid comparable to that found in animals which synthesize ascorbic acid, guinea pigs and primates need more ascorbic acid than just enough to prevent scurvy. Concentrations of ascorbic acid in human tissues are roughly comparable to those in a number of animals. (c) There is evidence for an increased need of ascorbic acid in stress situations. In infections, the urinary excretion of ascorbic acid decreases and the blood level falls. A close relationship between adrenal cortical activity and ascorbic acid has been reported. (d) Studies of infants receiving human milk indicate that when the mother's diet is good, the infant receives 20 to 40 mg. ascorbic acid daily. (e) The amount of ascorbic acid necessary to maintain saturation of the tissues is in the neighborhood of 100 mg. or more daily.

Although there is no evidence that tissue saturation is essential for optimal nutrition, there must be some level, between the bare minimum which will prevent deficiency and the quantity required for tissue saturation, at which nutrition will be optimal. Amounts of ascorbic acid recommended in the allowances of this country will not maintain saturation in most instances, but they are higher than minimal requirements for the reasons stated above. The British committee believes that records of food consumption and of health during eight years of stringency, as well as studies of experimental deficiency in man, are good evidence that 30 mg. daily provides a reasonable margin of safety. An intake of 50 mg. is recommended during lactation to provide sufficient ascorbic acid in the milk.

In the Canadian standard, it is stated that there is no evidence relating ascorbic acid requirement to age or weight. This is not true if the amount needed to saturate the tissues is taken into consideration. The opinion is also expressed that "many adults appear to be normally supplied with vitamin C at 30 mg. per day." The basis for this statement is not recorded. Ascorbic acid is not recommended in increased amounts during pregnancy or lactation.

It is obvious that the desirable level of ascorbic acid intake is unknown. Whether the position taken in the Canadian and British standards, in the Recommended Dietary Allowances, or some middle ground, will prove to be correct must be decided by future investigation. In the meantime, it is unlikely that any significant change in recommendations for ascorbic acid will be made in the proposed revision of dietary allowances in this country.

Vitamin D

There is abundant evidence that 300 to 400 I.U. vitamin D daily will permit maximum calcium retention in infancy when calcium intake is satisfactory. Larger amounts of vitamin D do not affect dentition or rates of growth. Premature infants probably do not require more vitamin D than those born at full term. A few children do not require any vitamin D supplement although the majority need one. There is some evidence that adolescents need as much vitamin D as infants.

The recommendations in the United States standard are 400 units daily from birth to twenty years of age, and a similar amount during pregnancy and lactation. The British and Canadian standards recommend up to 800 I.U. in early life and the British, 800 I.U. in lactation.

Requirements for other nutrients will not be considered in this paper. In the revision of Recommended Dietary Allowances which is under study, consideration will be given to pyridoxine, pantothenic acid, and vitamin B_{12} in addition to the nutrients discussed in the 1948 publication.

The preceding discussion has emphasized that the purposes and philosophy behind any dietary standard must be appreciated for proper application. In some situations, standards based on minimal requirements are useful and in others, standards representing nutritional goals are more desirable. For certain nutrients, recommendations should be related to body size, for others, to caloric consumption, or for still others, to active metabolizing tissue or to the individual. There are many gaps in our knowledge of even minimal requirements and very few quantitative data relative to optimal needs.

EMERGENCY NEEDS

Knowledge of minimal requirements and of the rate at which the body may be depleted of nutrients is especially important in planning food supplies for emergency situations. In estimating nutritional allowances for periods of food shortage, the severity and duration of the emergency must be considered and also the population group which will be affected. Both the composition and nutritional status of the population will influence recommendations.

In severe emergencies, a supply of water is of first importance followed by provision for energy needs by distribution of whatever foods may be available. Special plans are needed for infants to insure supplies of canned evaporated milk or dry milk powder, cereals, and water. It should be recognized that "drastic reductions in food intakes for a few days, or even weeks, is tolerated reasonably well except by infants, by lactating women, by the sick and injured and by those engaged in heavy work. This is particularly true if the calories which are available come from foods which furnish a variety of nutrients such as bread, potatoes and milk" in contrast to highly refined products (17).

In severe emergencies, plans should include allotment of extra food to persons in the categories listed above. In longer periods of food shortage, pregnant women should be included in the vulnerable groups and be provided with additional nutrients. When emergency feeding is necessary for more than a few weeks, the need for protein, thiamine, other B-complex vitamins, and ascorbic acid must be considered. Little attention need be paid to the fat-soluble vitamins except for infants or when food has been severely restricted for many months. In any prolonged period of food shortage, frequent examination of the population by trained survey teams is essential to ascertain the effect of the food program on the health and nutritional status of the people.

REFERENCES

(1) Food and Nutrition Board: Recommended Dietary Allowances, Revised. National Research Council Rep. & Circ. Series No. 129, October, 1948.
(2) Report of the Committee on Nutrition. London: British Medical Association, 1950.
(3) Canadian Council on Nutrition: A dietary standard for Canada approved by the Canadian Council on Nutrition. Bull. Canad. Council on Nutrition 2: 1, 1950.
(4) Committee on Calorie Requirements: Calorie Requirements. FAO Nutritional Studies No. 5, June, 1950.
(5) Crampton, E. W.: Canadian nutritional problems, with reference to the Canadian dietary standards. Canad. J. Pub. Health 41: 359, 1950.
(6) Rosenberg, H. R.: Chemistry and Physiology of the Vitamins. Rev. ed. New York: Interscience Publishers, Inc., 1945.
(7) Hume, E. M., and Krebs, H. A.: Vitamin A Requirement of Human Adults: An Experimental Study of Vitamin A Deprivation in Man. A Report of the Vitamin A Sub-Committee of the Accessory Food Factors Committee. Medical Research Council Spec. Rep. Series No. 264, 1949.
(8) Daum, K., Tuttle, W. W., and Wilson, M.: Influence of various levels of thiamine intake on physiologic response. 7. Thiamine requirements and their implications. J. Am. Dietet. A. 25: 398, 1949.
(9) Holt, L. E., Jr., Nemir, R. L., Snyderman, S. E., Albanese, A. A., Ketron, K. C., Guy, L. P., and Carretero, R.: The thiamine requirement of the normal infant. J. Nutrition 37: 53, 1949.
(10) Knott, E. M., Kleiger, S. C., and Schultz, F. W.: Is breast milk adequate in meeting the thiamine requirement of infants? J. Pediat. 22: 43, 1943.
(11) Knott, E. M., Kleiger, S. C., and Torres-Bracamonte, F.: Factors affecting the thiamine content of breast milk. J. Nutrition 25: 49, 1943.
(12) Horwitt, M. K., Hills, O. W., Harvey, C. C., Liebert, E., and Steinberg, D. L.: Effects of dietary depletion of riboflavin. J. Nutrition 39: 357, 1949.
(13) Krehl, W. A., Sarma, P. S., Teply, L. J., and Elvehjem, C. A.: Factors affecting the dietary niacin and tryptophane requirement of the growing rat. J. Nutrition 31: 85, 1946.
(14) Frazier, E. I., and Friedemann, T. E.: Pellagra, a study in human nutrition. The multiple-factor principle of the determination of minimum vitamin requirements. Quart. Bull. Northwestern Univ. M. Sch. 20: 24, 1946.
(15) Goldsmith, G. A., Sarett, H. P., Register, U. D., and Gibbens, J.: Studies of niacin requirement in man. 1. Experimental pellagra in subjects on corn diets low in niacin and tryptophan. J. Clin. Investigation 31: 533, 1952.
(16) Goldsmith, G. A.: Unpublished data.
(17) Committee on Dietary Allowances: Suggestions for Formulating Plans for Emergency Feeding of Uninjured Civilians. Proc. Food and Nutrition Board 11: 12 (May), 1951.

Production and Consumer Aspects of Low-Sodium Canned Foods[1]

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AT THE February, 1951, meeting of the National Canners Association, Dr. Franklin Bing addressed the canning industry on the subject "Nutritional Aspects of Low-Sodium Diets." He pointed out that although various physicians had reported on the beneficial effects of salt-restricted diets in the treatment of hypertension as long as forty years ago, it was not until the report of Kempner in 1944 on the dramatic reduction of blood pressure and the relief of associated symptoms of hypertension with the so-called rice diet that interest in the subject was really stimulated.

The rice diet is very low in sodium and insufficiently balanced in protein for prolonged treatment. Although attempts have been made to improve this diet, both from the standpoint of palatability and nutritional adequacy, a varied diet of controlled sodium content which supplies the recommended allowances of nutrients is favored by the medical profession and dietitians and is more readily accepted and properly used by patients. Some patients are on a narrow area of regulation with regard to sodium balance, which makes it imperative that the sodium content of components of the diet be accurately controlled and labeled by the manufacturers. Since most patients on low-sodium diets are emotionally disturbed and need relaxation for recovery, the palatability of the diet and a variety of foods have great psychologic significance.

Low-sodium diets have come to assume a recognized place in the dietary management of a number of diseases: hypertension, congestive heart disease, and certain kidney diseases. They have also been used with varying degrees of success in the management of Meniere's disease, obesity of children, certain allergies and skin diseases, and in toxemias of pregnancy. A survey made by Bing (1) in 1949 showed that 6 per cent of the patients of the forty-five hospitals reporting were on low-sodium diets. He further stated in early 1951: "The survey has not been repeated, but limited inquiry has indicated that the use of low-sodium diets continues to gain acceptance in the medical management of patients not only in hospitals, but also of patients under medical treatment who are living useful lives in their communities and at home. It must be remembered that many persons hospitalized and placed on low-sodium diets are greatly improved and upon discharge from the hospital are obliged to remain on low-sodium diets for the rest of their lives. The potential market for low-sodium foods may be conservatively estimated to be about equal in magnitude to the market for canned, strained, and chopped foods for infants and small children." This is not surprising in view of the report of Dr. Maurice S. Goldstein at the recent Symposium on Special Dietary Foods at the American Chemical Society in September 1952 at which he stated (2) that a 25 to 50 per cent improvement has been noted in patients with cardiovascular disease through the use of low-sodium diets.

NEED FOR LOW-SODIUM FOODS

The average diet with no restriction of salt supplies about 4 to 8 gm. sodium per day. The total elimination of salt in the kitchen and at the table and the consumption of no highly salted foods will reduce the intake to 1.5 to 3 gm. sodium daily. This represents the level of sodium in a mildly restricted diet. Moderate restriction of sodium—0.5 to 1.5 gm. daily—requires further elimination of many processed foods which are flavored with salt, such as canned vegetables, and the avoidance of certain foods which are naturally high in sodium content. Severely restricted low-sodium diets provide less than 0.5 gm. sodium daily, and in some instances as little as 0.1 to 0.2 gm. Rigid control must be exercised in these highly restricted sodium diets because excessive depletion of body sodium may result in circulatory collapse or uremia. Foods intended for use in such diets should be reliably supported by analytical information with respect to their sodium content and properly labelled for the guidance of the doctor, dietitian, and the patient. There is definitely no room for careless

[1] Presented at the 35th Annual Meeting of The American Dietetic Association in Minneapolis, on October 24, 1952.

operators in this segment of the food industry. The users of these products are already sick people relying on their food as they do their medicines, hoping that the same code of ethics guides the manufacturers of both.

The question can be asked: Is the commercial production of low-sodium foods justified? The answer, which has already been indicated, is that there is a demand for a variety of foods of accurately controlled sodium content for use in the medically prescribed regimens of a relatively large number of people. The food industry can render a most useful service in making a variety of low-sodium foods available. The improvement of the palatability of some foods through the use of various flavoring agents should be explored more fully.

The following classes of food products with controlled sodium content are presently available:

Alimentary pastes	Canned meats
Baking products	Canned vegetables
Bakery powder	Cereals
Breakfast foods	Cheese
Butter	Margarine
Candy	Salad dressings
Canned fish	Salt substitutes
Canned fruits	Soups and soup mixes

In 1951 there were eighty-five packers of canned dietetic foods (mostly low-sodium) with an estimated output of 5 million cases comprising fifty-three products. There will be further rapid growth in the number and quantity of such special purpose foods.

The incomes of most of the people using low-sodium foods are already reduced because of their medical expense. The premium they must pay for low-sodium foods is naturally an important factor. Dr. James Wilson (3), in his discussion at the recent Symposium on Dietary Foods, cited an example of a can of low-sodium Irish stew for $1.59 while the regular Irish stew in the same size can sold for 25 cents.

Such a wide differential in price is difficult to understand, and unfortunately, hypertension and cardiovascular diseases are not especially ills of the rich. However, there are added costs to the production and distribution of these items. From the manufacturer's standpoint, such products involve a smaller volume pack, require rigid control in preparation, frequent analytical control, special labeling, segregated warehousing, and smaller shipments and special small lot merchandising. As experience is gained in producing low-sodium foods, and as the confidence of dietitians and others in the ability of the industry to provide dependable products in this class is developed, it is reasonable to assume that volume production and competition will keep the prices of these special foods at reasonable levels.

CANNING INDUSTRY'S RESEARCH PROGRAM

Because of the interest in dietetic canned foods, the National Canners Association-Can Manufacturers Institute Nutrition Program started an investigation in 1949 to obtain more adequate analytical information on special dietary canned foods in order to provide usable data on such products for those trained to interpret and utilize this information wisely. Also of vital interest was the investigation of certain practices in canning operations in which salt or sodium hydroxide is used, to determine the significance of these operations on the final sodium content of the canned products. Salt brine is conventionally used in the quality separation of peas of various maturities, and lye-peeling is common practice for certain fruits and vegetables. Also, certain fruits are sometimes soaked in, or sprayed with, a weak salt solution to prevent discoloration. To inform canners of the proper precautions, precision, and control necessary to pack reliable low-sodium canned foods, more information was needed on the possible sodium contamination from regular canning operations. It was not known what ranges of sodium content could be expected if the best practices were employed. Information was also lacking as a guide for good informative labeling.

The first year's program called for the analysis of thirty-one experimentally packed dietetic canned food products for sodium, potassium, and proximate composition. Potassium analyses were included because authorities in physiology and nutrition suggested that such data might be helpful in future considerations of the combined effects of sodium and potassium. Fruit cocktail was the only formulated product included, this exception being made because of the widespread popularity of this standardized product.

Following the previous pattern of sampling, assigned technical representatives of the canning industry prepared and shipped the experimentally canned dietetic food samples and the corresponding samples of cannery water. The following instructions were given:

> These samples should be collected only by a technically trained person. The collector should obtain line samples only. Each can should be checked, weighed and adjusted to a uniform product fill in weight in order to maintain a constant solids-liquid ratio. Pure cannery water should be used to fill the cans of those products which are normally brined or syruped to the conventional gross headspace. Twenty retail size cans should be so prepared. Four cans of the water used in place of brine or syrup should be included in each sampling, thus making a total of 24 cans for shipment.

The samples were shipped to a central distributing point with an accompanying sample record form on which pertinent information regarding the samples was recorded. There the samples were coded, two cans examined for general quality characteristics, and six cans forwarded to the laboratory of the Wisconsin Alumni Research Foundation where the analyses were conducted under the supervision of

Dr. C. A. Elvehjem. Composites were made of the contents of the six cans, and analyses were done on a drained solid and liquid basis, where possible. The water samples were analyzed for sodium only. With regard to methods, the sample preparation and proximate analyses were conducted according to the AOAC methods (4). Sodium and potassium were determined by the method of Bills *et al.* (5), using the Beckman flame photometer at 389 millimicrons for sodium and 769 millimicrons for potassium. Considerable work was done with this sodium method to be sure of its accuracy on canned food samples before any of the samplings were analyzed. The checks obtained on recoveries of added sodium and the precision obtained on repeated analyses of the same samples assured all that the method was suitable for the purpose intended.

When the results on the 150 samples from the first year's efforts were reviewed, it was apparent that enough consistent sodium values were not available to establish reliable ranges and averages for most of the products included. Also, those who collected the samples did not adequately avoid sodium-contaminating preparatory processes. Thus there were many high sodium values which could be directly traced to such operations as brine separation, zeolite softened water, lye-peeling, and so on.

Consequently, it was felt necessary to extend the program another year on a slightly more extensive basis. Most of the products were resampled, some new products were introduced, and particular attention was directed to eliminating sources of sodium contamination. The following additional instructions were issued to the technical men for the second year's samplings:

> The 1950 analyses of dietetic canned foods showed clearly the importance of controlling all preparatory and canning steps so that *no* sodium is introduced into the product above that naturally present. Operations such as lye-peeling, quality grading with salt brine, salt spray, or soaking treatment for inhibiting enzyme activity, and zeolite softened water for brining purposes must be avoided in the preparation of the dietetic canned samples.

It was not felt necessary to continue the potassium analyses the second year. Similarly, proximate analyses were scheduled only for the samples for which sufficient information was not already available.

Results of analyses of 366 samples, consisting of fifteen vegetables, nineteen fruits, and seven juices were obtained in the two-year program. A sufficient number of samples of each product was obtained so that significant ranges and averages of sodium content would be available for each product. Proximate composition data were also obtained on the samples to supply additional information for dietary planning.

In Table 1, a summary of the sodium data made available by this survey is shown. The canned food products are grouped in accordance with their average sodium content. If such information is available in a similar useful form for other components of the diet, the selection of foods from the various brackets for sodium-restricted diets should be rather simple for the dietitian. Whether such data should be on a per serving basis or a 100-gm. basis is a matter of opinion, but there is no doubt that both methods of presentation would be most useful.

CANNING PROCESSES EVALUATED

In the NCA-CMI Nutrition Program investigation, certain canning practices were evaluated to determine their significance in the production of high-quality, reliable low-sodium canned foods. The operations in question were: lye-peeling, salt-brine quality separation of peas and Lima beans, treatment of certain products with weak salt solution to prevent discoloration, and the use of high-sodium water, either due to natural composition or zeolite softening. A report was made to the industry by Esty (6) in

TABLE 1

Range of sodium content of canned vegetables, fruits, and fruit juices

Below 5 mg. per 100 gm.

VEGETABLES	
Beans, green	Peas, Alaska
Corn, white, whole grain	Peas, sweet
Corn, yellow, whole grain	Potatoes, white
Mushrooms	Tomatoes
FRUITS	
Applesauce	Grapes
Apricots	Peaches, clingstone
Blackberries	Peaches, freestone
Blueberries	Pineapple
Boysenberries	Plums, greengage
Cherries, dark, sweet	Plums, purple
Cherries, light, sweet	Raspberries
Fruit cocktail	Strawberries
Grapefruit segments	
FRUIT JUICES	
Apple	Orange
Grapefruit	Orange and grapefruit blend
Lemon	Pineapple

From 5 to 10 mg. per 100 gm.

VEGETABLES
Asparagus, green
Asparagus, white
FRUITS
Figs
Pears
JUICES
Tomato

From 10 to 20 mg. per 100 mg.

VEGETABLES
Beans, Lima
Potatoes, sweet

From 20 to 40 mg. per 100 mg.

VEGETABLES
Beets
Carrots

From 40 to 60 mg. per 100 mg.

VEGETABLES
Spinach

1951, as a guide to canners interested in packing low-sodium foods. Some of our observations with regard to the extent of sodium contamination by the operations mentioned may be of interest to you.

Lye-Peeling

All of the thirteen samples of clingstone peaches analyzed were lye-peeled, since this is a universal and almost irreplaceable operation for this product. The highest sodium value found was 6.2 mg. per 100 gm., with an average for the group of 3.3 mg. It may be concluded, therefore, that this operation does not seriously contaminate the product with sodium, and if followed by adequate washing, should be suitable for low-sodium peaches.

However, for tomatoes, lye-peeling in one instance raised the sodium content from a normal level of under 5 mg. per 100 gm. to 33.2 mg. Two samples of beets and one sample of carrots which were lye-peeled, although running 37, 45, and 15 mg. sodium per 100 gm., respectively, could not be classed as high in sodium compared with the normal sodium content of these products. In general, however, it would be advisable for canners to eliminate, if possible, this practice by substituting steam-peeling.

For grapefruit segments, as Esty (6) has previously reported, samples running 7 and 8.6 mg. sodium per 100 gm. were found for some lye-peeled segments, although a similar treatment for other samples showed values of only 2.6 mg. and 2.7 mg. as compared with the natural grapefruit which should run about 1 mg. per 100 gm. If lye-peeling is used for low-sodium packs of this product, adequate washing should be strongly emphasized.

Treatment with Salt Solution to Prevent Discoloration of Pears

Two lots of pears which received slight salt-rinse treatments contained 8.3 and 18.5 mg. sodium per 100 gm., while another receiving a heavier salt rinse contained 36.3 mg. sodium. The average of six lots of pears canned without a salt rinse was 1.2 mg. per 100 gm.

Salt-Brine Quality Separation of Peas and Lima Beans

The effect of quality grading of peas is clearly shown by two companion samples only one of which was quality graded. The quality graded sweet peas contained 30.9 mg. sodium per 100 gm., while the control sample contained 6.1 mg. Similarly, a sample of quality graded Lima beans was found to contain 49.5 mg. sodium per 100 gm. Quality grading for maturity must be avoided in the canning of low-sodium peas and Lima beans.

Effect of Canning Water

Any water containing over 10 mg. sodium per 100 gm. may be classed as higher than desirable for use in canning low-sodium canned foods. A canning water with no treatment was found which contained 40.5 mg. sodium per 100 gm. The peas canned with this water were found to contain 12 mg. sodium per 100 gm. as compared to a normal average for peas of 1.7 mg. per 100 gm. For yellow corn, a 41.4-mg. water was responsible for a 45.4-mg. product, and in an other instance, a 29.5-mg. water resulted in 30 mg. sodium per 100 gm. For asparagus, the three highest samples, running 4.2, 9.0, and 11.2 mg. sodium per 100 gm., were canned with high-sodium waters containing 13.3, 12.0, and 14.4 mg. sodium per 100 gm., respectively.

NEW BULLETIN

The data from this entire survey are now incorporated in a bulletin of the National Canners Association titled *Dietetic Canned Foods* (7). The text is being submitted to the Council on Foods and Nutrition of the American Medical Association for review and comment. As a result of conferences with members of the Food and Drug Administration, it contains reliable recommendations on labeling for this class of special-purpose canned foods. It becomes available in February. The National Canners Association has expressed its willingness to make this bulletin available to members of The American Dietetic Association who wish to have it.

LABELING

One of the prominent features of this bulletin is a discussion on labeling such products. The medical profession, dietitians, and patients must be fully informed of the composition of such special-purpose foods for best use in diet therapy, and the requirements of the Food and Drug Administration must be fully met.

Members of the NCA-CMI Nutrition Committee have drawn up a series of questions on the problem of labeling dietetic canned foods and helpful answers have been provided by the Food and Drug Administration. Cameron (8), in his discussion of "Labeling of Dietetic Canned Foods" in January, 1951, summarized the results of our contacts with the Food and Drug Administration on this matter for the main purpose of guiding canners. Beacham (9) and Nelson (10) have also recently commented on this subject. In general, the following guiding conclusions have been derived:

(a) Dietetic canned foods represent foods for special dietary uses and are subject to the regulations of section 403 (j) of the Food, Drug and Cosmetic Act. A statement of the special dietary properties of the products is required, which makes it almost inevitable that the purpose of the product, such as the kind of a restricted diet in which it is to be used, would be called for on the label.

(b) A statement should be made on the label "packed without added salt" or "packed in water

without added salt" where salt is a customary ingredient and is omitted. To avoid the impression that the product contains no salt, the word "added" is desirable. Use of the term "salt free" seems improper for any food.

(c) Reference to the absence of added sodium (or salt) either on the label or in collateral advertising requires that the label bear a statement of the actual sodium content. The sodium content should preferably be expressed in milligrams per hundred grams. For further dietary control, particularly with reference to low-calorie diets, a statement of the proximate analysis and caloric content per 100 gm. should also be given. Periodic analyses of the product for sodium content should be made and the statements on the label corrected accordingly, if the facts require.

(d) Expressions such as "very low-sodium food" and other such ambiguous terms should be avoided.

(e) Where the level of any nutrients common to the product may be altered by a process used in making the product of low-sodium content, the level of these nutrients should also be indicated on the label.

SUMMARY

In summary, the National Canners Association-Can Manufacturers Institute Nutrition Program has conducted an extensive investigation on the sodium composition of a number of low-sodium canned foods which data are presently being made available to the medical profession, dietitians, and patients for low-sodium diet therapy. Certain canning practices in which sodium contamination may occur have been investigated and have been found in several instances to be undesirable in the preparation of low-sodium canned foods. Canners have been properly advised in this regard. The advice of the Food and Drug Administration on labeling dietetic canned foods, including low-sodium canned foods, has been clearly presented. It is the desire of those stimulating these efforts that they will be useful to canners in better production control and labeling of these products, and result in the more intelligent and helpful use of these products by those prescribing or using low-sodium diet therapy.

REFERENCES

(1) Bing, F. C.: Nutritional aspects of low-sodium diets. Natl. Canners Assn. Information Letter No. 1325, February 28, 1951, p. 78.

(2) Goldstein, M. S.: Low-Sodium Diets in Cardiovascular and Other Disorders. Presented at Am. Chemical Society Symposium on Special Dietary Foods, Atlantic City, N. J., September 20, 1952.

(3) Wilson, J. R.: Observations on Production and Utility Aspects of Low-Sodium Foods. Presented at Am. Chemical Society Symposium on Special Dietary Foods, Atlantic City, N. J., September 20, 1952.

(4) Assn. Official Agricultural Chemists: Official and Tentative Methods of Analysis. 6th ed. Washington: Assn. Off. Agric. Chemists, 1945.

(5) Bills, C. E., McDonald, F. G., Niedermeier, W., and Schwartz, M. C.: Sodium and potassium in foods and waters. Determination by the flame photometer. J. Am. Dietet. A. 25: 304, 1949.

(6) Esty, J. R.: Dietetic packs in the nutritional program. Natl. Canners Assn. Information Letter No. 1325, February 28, 1951, p. 77.

(7) Dietetic Canned Foods. Natl. Canners Assn. Bull., February, 1953.

(8) Cameron, E. J.: Labeling of dietetic canned foods. Natl. Canners Assn. Information Letter No. 1371, January 30, 1952, p. 30.

(9) Beacham, L. M.: More grist from the food and drug mill. Food Drug Cosmetic Law J. 7: 255, 1952.

(10) Nelson, E. M.: Labeling Requirements for Foods for Special Dietary Uses. Presented at Am. Chemical Society Symposium on Special Dietary Foods, Atlantic City, N. J., September 20, 1952.

What to Do When Home Freezer Power Fails

Frozen food is not sterile in the same sense as canned food; therefore, power failure may ruin an otherwise perfectly preserved pack of frozen food. Little chance of thawing exists in the first 48 hr. in home freezers with normal loads in rooms at ordinary temperatures.

Fruits are the least vulnerable of foods to thawing. The only damage that usually occurs comes from yeasts which bring about fermentation and may impair flavor.

After 24 hr., it may be advisable to use dry ice. Sufficient dry ice with additions as needed will hold the temperature of the freezer and its contents low enough to protect the food for an extended length of time. Specific recommendations are made for the use of dry ice: (a) open a door or window to ventilate the room where the freezer is located; (b) handle the dry ice with heavy gloves; (c) saw or break the 50-lb. cubes in which dry ice is available into several pieces and distribute it over the top of the packages. Most ice cream companies can supply the information as to where dry ice is available in quantity.

Recommendations are also made regarding refreezing. Cooked dishes, such as chicken à la king and stews, should be thrown away. Fruits can be refrozen and cooked if not fermented or molded. Vegetables can also be refrozen and cooked if they have not reached a temperature above 50°F., and if there is no off-odor noticeable. Meats, including beef, lamb, pork, and poultry, can be refrozen and cooked if they have not reached a temperature above 50°F.; however, with fish, the danger temperature is 45°F.

If the freezer contained a large amount of food at the time of the power failure, and if it has thawed, the wisest procedure is to transfer the food to the local locker plant for refreezing, and then to return it to the home unit for storage. Slow freezing may result in food damage.—*Abstracted from: Hints for Locker Operators. Power Failure and the Home Freezer. Quick Frozen Foods 14: 136 (July), 1952.*

Interpersonal Relationships: Can They Be "Taught"?[1]

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AN internship begins where the academic training stops. The academic training of the professional person is designed to give that individual the knowledge in the basic sciences which are to be his main tools in carrying out his professional tasks. The internship is designed to equip him with the techniques, the know-how, the means of putting into practice the things he has learned in school. This, of course, is an over-simplification. I do not mean to imply that in the academic program everything is theory and that in the internship everything is practice. To me, it would seem that an internship which simply teaches procedures and does not raise in the minds of its interns a desire for further basic knowledge and for expansion of the frontiers of its field is hardly worthy of the name.

Such an internship would not be prepared to develop professional people. It would really be developing technicians. Conversely, an academic program which does not tie its theories into meaningful life situations would not equip its students very well for professional life. It would be preparing good armchair theoreticians rather than professional practitioners. Actually, there must be a dovetailing between the academic and the internship program of the well-trained professional person. We can safely say, however, that the *major* function of the internship is to give the student the practical experience of doing the job.

You will note that I have spoken of internships in general. I believe that what is true of the practical training of the dietitian applies equally to the training of all professional groups—doctors, psychologists, nurses, social workers, and others.

An internship fulfills its function to the extent that it prepares the intern in all phases of the work that he or she is eventually to do. It is not designed to turn out specialists, but rather people with general backgrounds prepared to do all types of work.

WORKING WITH OTHER PEOPLE

Let us see how this criterion of a good internship applies to the profession of dietetics. The average dietitian finds that a great part of her professional life involves working in some kind of relationship with other persons. One function of the internship, therefore, should be to prepare her to deal with people just as it prepares her to deal with specific technical problems, such as availability of supplies, storage facilities, food budgeting, food procuring, standardization of recipes, nutritional adequacy, and so on. It is most important for her to be able to apply the technical knowledge required to meet rigorous medical demands for an adequate diet for a diabetic or a cardiac patient, but the most carefully developed dietetic regimen is of questionable value if the patient, regardless of his reasons, refuses to cooperate.

What is the dietitian to do if a patient, who is her charge, refuses to eat? What is she to do if one "problem" patient is disturbing a whole ward and is making every meal a burden to her and to other patients? What is she to do with the patient who blinds himself to the need for the dietary regulations under which he must now live? What does she do when she finds herself besieged with a group of patients who are soon to be discharged and for whom some type of group instruction must be arranged? Must she become a "schoolteacher"? If so, is she prepared for this assignment?

Let us consider another area of the dietitian's work. She often has supervisory responsibility over many nonprofessional persons—cooks, cooks'-

[1] Reviewed in the Veterans Administration and published with the approval of the Chief Medical Director. The statements and conclusions are the result of the author's own study and do not necessarily reflect the opinion or policy of the Veterans Administration. Presented at the Conferences of Directors and Staffs of Approved Dietetic Internships in Minneapolis, on October 18, 1952.

[2] The writer wishes to express his appreciation to Martha Moffit, Instructor in Dietetics, Veterans Administration Hospital, Hines, Illinois, for her critical reading of this manuscript and for her helpful suggestions. She has also worked with the writer in developing the program described here.

helpers, butchers, bakers, and less skilled workers. It is most important for her to know timing schedules for preparing each dish to be served at a given meal; to be familiar with problems of preparation in large quantities as compared to small quantities, problems of economy related to different cuts of meat, and so on. Does she have any idea of what to do when her chief cook, a skilled person, is as lazy as he is skilled? Does she feel prepared to handle the problem of her top-notch baker who goes on occasional binges, especially when top-notch bakers are hard to find? Can she cope with problems of morale created by one or two disgruntled employees?

In working with other professional persons, is she able to maintain a harmonious working relationship? Can she interpret her job to the nurse or the social worker or the doctor?

It is our contention that the dietetic internship should consider as an integral part of its responsibility the training of the intern to deal with such problems.

DEVELOPING SELF-UNDERSTANDING

The question then arises: How does one train others in the area of interpersonal relationship? Does one teach this in a course? Does one lecture on this? Does one demonstrate it? My thesis is that an internship cannot teach interpersonal relationship to its interns in the ordinary sense of the term "teaching." It can only create a situation, an atmosphere in which it becomes possible for the intern to become aware of and sensitive to the problems of working with people.

It should make the intern more aware of herself as a person. The internship should make it possible for her to develop some insight into her own needs and drives and strivings in relation to others, be they patients who depend greatly on her, co-workers who share responsibilities with her, or superiors who set policy and, in the long run, "tell her what to do." She should, for example, develop some understanding through her internship experience as to why she likes to work with certain kinds of people and not with others, why certain patients irritate her, and why certain others make her feel very maternal and protective, and she should gain an appreciation of why her co-worker may feel exactly the opposite in working with these kinds of patients.

In short, I suggest that the internship serves a valuable function in helping the intern obtain a better understanding of herself. The more she is aware of the kind of person she herself is, the better able she will be to know what other people are really like. Knowing this, she will be more comfortable in her relationships with them. Her contacts with patients may thus be of a more positive therapeutic nature. Her handling of difficult employee relationships can be more conducive to the building of morale. Her contacts with other professional persons can lead to better appreciation of each other's problems and more sincere respect for one another.

SEMINAR SUBJECTS

What can be included in an internship to encourage this type of development in interns? I think a great deal of experimenting will be needed before we can hope to arrive at a good answer, but I should like to share with you some of our experiences in this kind of experimental program which was initiated last year in the dietetic internship at the Veterans Administration Hospital, Hines, Illinois. We are continuing the program this year with some modifications based on last year's experience. There would be little value in presenting to you a clear-cut curriculum for this program, since we know that further experience will result in further changes. We think it will be more profitable to tell you in a general way about some of the things we have tried to do to implement the aims which we have already presented.

We have organized a series of meetings or seminars with the interns (we prefer to think of it in these terms, rather than as a course) in which the above questions serve as a basis for discussion. There are two problems involved in these meetings. One is the content or subject matter, the other is the method of presentation.

In regard to content, there is so much material to cover in a very limited time that the problem has been almost entirely one of selection. Currently we are limiting the subject matter to five major areas: a) the psychologic implications of food and nutrition; (b) interpersonal relationships with patients; (c) interpersonal relationships with other professional personnel; (d) interpersonal relationships with nonprofessional personnel; and (e) working with groups.

In the first topic, the discussion centers around such things as the use of food as a substitute for other kinds of gratifications, food as a symbol of national and cultural identifications, food as a representation of prestige and authority, and food as a tool or weapon in the hands of the giver or receiver. Space does not allow us to elaborate further on each of these subtopics. Suffice it to say that throughout the discussion the aim is to develop in the intern a real feeling that emotional and psychologic implications of food must be considered along with its purely nutritional aspects.

In the second, third, and fourth topics, namely, interpersonal relationships with patients, professional personnel, and nonprofessional employees, there is some attempt to treat these as separate topics, but there is considerable overlapping. In fact, the overlapping is often brought about by one of the more intuitive interns who will point out that what we have just said about relationships with the one group applies as well in our relationships with

the other two. This really is one of our major goals—to get across to the intern that basic relationships with all human beings are governed by the same fundamentals and that differences between groups lie in specific problems and specific techniques or procedures in handling them.

It should be made very clear, however, that we do not try to teach these specific techniques. We do not list ten points on how to gain the cooperation of unhappy or disturbed patients, another ten points on how to keep your best cook or kitchen helper from drinking too much, and still another ten on how to teach a doctor some things he ought to know (but doesn't) about dietetics and still make him like it. The examples of specific situations are used as illustrative material to emphasize the most significant aspects of relationships with people.

The fifth topic, working with groups, concerns itself with problems of getting across material to various types of groups, but particularly to groups of patients and of new employees.

SEMINAR METHODS

The above is the "what" of the seminar. The "how" of the seminar, the method of working this material into a fruitful discussion, is more complicated. We feel that this area in particular needs further exploration. It may be easier to start off with one or two suggestions about what not to do, since we feel much more sure of our ground here. A most important thing, it seems to us, is not to give a series of lectures, not to make a classroom of the sessions with the interns sitting passively and taking notes. One does not learn how to deal with real human problems in this way. In fact, knowledge gained in this way can often lull the interns into a sense of false security in dealing with people. Even worse, it can be used by the intern as a defense against coming to grips with her own problems and of recognizing real personal limitations in dealing with others. I'm sure all of us know individuals who can cite chapter and page of the most widely read and currently accepted books in applied psychology but who are most incapable of practicing what they read. They can tell you very glibly what to do to gain friends and influence people, but they can't do it themselves.

On the positive side, as to what to do in the seminar, we can suggest some things for consideration. There might be a presentation of background material to the group which can serve as a springboard for interaction. We are experimenting with such devices as posing problems and calling for group discussion. We may ask an intern to present a typical difficulty she has experienced with a patient and then call for comments or recommendations from other members of the seminar as to how they would handle this situation.

To create the atmosphere of a seminar rather than a classroom, even small details such as the seating arrangement may be important. A typical schoolroom arrangement of chairs or desks may create the attitude of preparing for a lecture. A circular arrangement of chairs may help encourage the expectation that there is to be an exchange of ideas and feelings on topics of mutual interest. A small group, ten or twelve at the most, is preferable to a larger group. The small group makes it easier to deal with personal problems and situations. It is more conducive to an attitude of participation as contrasted to the attitude of passive absorption which most us have carried over from our high school and college careers. It is our feeling that one of the most difficult resistances to break through is the tendency of the intern to think of the internship as a continuation of class work. There were two interns in one of our groups who expressed some discomfort at the end of the series of meetings because all they had to show for their participation were several pages of doodlings and scribblings rather than a well organized and neatly prepared series of lecture notes.

It is sometimes possible to use the interaction among the interns or their reactions to events occurring during the seminar to illustrate some of the basic principles involved. The leader may direct a question to the group. It becomes obvious that no one feels comfortable in trying to answer it. The leader points this out to the group and asks the members to evaluate their own feelings at that moment. One intern might report that she felt uncomfortable at the silence that followed the question. Another might report a mild feeling of anxiety that she might be called on to respond. The group leader may then draw a parallel between this situation and one in which one of them might be the instructor or the leader working with a group of patients or a group of new employees. Another example is the manipulating of the seating arrangements, so that the group leader may be sitting behind a desk very much as a teacher might do. He then encourages the group to be aware of the physical and psychologic barrier between them in this situation as compared to the feeling of closeness and informality when a circular arrangement of chairs is used.

THE OPEN SESSION

We have also experimented with a special meeting of the interns which we have called a "free-for-all" session. The idea behind this was that the interns should have some opportunity to air their feelings and work out group problems related to their internship. It seemed quite understandable to us that a group of girls coming from all parts of the country and having different college backgrounds and experiences should have some problems of adjustment in a new situation. An institution operates by regu-

lations and defined procedures. These often of necessity impose restrictions and limitations. Many of these may seem unreasonable and unnecessary to the interns. We felt, therefore, that it might be a therapeutic measure to encourage a complete airing of these feelings and to treat these problems as problems of the group.

For a meeting of this kind to have any value, however, certain conditions must be met. No staff member responsible for evaluating or rating the interns may be present. The group leader must make it clear to the interns that whatever happens in the group is to be held in strictest confidence. Finally, the group must be given to understand that the group leader is not going to become an errand boy to present grievances or complaints to the authorities or to request changes in policy.

It should be clearly recognized that this kind of meeting is loaded with dynamite. If these conditions are not met and if the great bulk of complaints are based on a situation which is in reality unsatisfactory, the meeting can have very disturbing consequences. On the other hand, if the conditions *are* met and if the majority of the problems are problems of personal adjustment on the part of the interns, this kind of meeting can result in most wholesome effects. Our one experience with this type of meeting was very satisfactory. There was a most interesting sequence of developments. At first there was an expression of complaints and minor irritations. As the meeting developed, many of these irritations seemed to assume less importance. There was a growing recognition that some of the problems were purely individual matters and not the concern of the group. There was also an awareness of the need for some of the restrictions and limitations. There was finally a clarification of some of the issues which it was felt, if properly brought to the attention of their supervisors, might be straightened out. To us, the most important thing was that after this therapeutic release of feeling, the girls then went on to discuss deeply significant problems, such as their attitudes toward their profession, the attitudes of the general public, and finally their own long-term personal goals in life.

SUMMARY

In concluding this report, I should like to reiterate briefly some of our attitudes towards the problems discussed here. We feel it is one of the functions of the internship to train its interns to deal adequately and effectively with people. This training should not take the form of teaching as we ordinarily think of teaching. It can be most effectively accomplished by creating a situation where learning can occur. We have presented some ideas as to how this development can be encouraged. We feel, however, that considerably more experimenting must be done before a curriculum can be set or a definite program can be incorporated into the standard internship. The whole problem is most stimulating and is a challenge we must face if we are to meet our obligation to the interns whom we train and to the public whom they will serve.

What Foods Do Doctors Think Are "Gaseous"?

During the last two years, the main project of the Diet Therapy Section of the Ohio Dietetic Association has been a study of the soft diet and its uses. As part of this project, a questionnaire was sent to doctors to learn their use of the "soft diet." For one of the questions, the doctors were asked to check those vegetables which they consider "gaseous." Their replies were interesting, and a summary is given below. The figures in parentheses indicate the number of doctors (out of 108 who returned the questionnaire) who considered the vegetables "gaseous."

Cabbage (87)
Sauerkraut (85)
Baked beans (82)
Cucumbers (79)
Onions (74)
Radishes (68)
Cauliflower (62)
Lima beans (58)
Brussels sprouts (54)
Shell beans (51)
Green peppers (44)
Broccoli (42)
Turnips (35)
Corn (33)
Kohl-rabi (26)
Leeks (26)
Asparagus (24)
Rhubarb (24)
Parsnips (23)
Kale (23)
Eggplant (23)
Endive (22)
Dandelion greens (19)
Sweet potatoes (19)
Artichokes (18)
Swiss chard (17)
Beet greens (15)
Okra (13)
Mushrooms (13)
Watercress (13)
Lettuce (13)
Pumpkin (11)
Celery (10)
Sorrel (10)
Squash (8)
Peas (7)
Tomatoes (7)
Summer squash (6)
String beans (6)
Marrow (6)
Potatoes (6)
Spinach (5)
Carrots, raw (1)
Beets (0)

Some doctors commented on the question itself, as follows: "What does this mean? Increased rectal flatus?" "75 per cent of the gas in the intestinal tract is swallowed air. Doubt that the food factor is terribly important"; "These are not gaseous. Apparently they increase instability and contractibility"; "These foods are not 'gaseous,' meaning the nature of a gas; they are gas formers."

Recipe Construction[1]

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RECIPE construction is a broad subject which includes many important problems. As in a previous paper (1), the results and facts given here are based in most cases on small-quantity or family-size recipes. Although the same basic principles should apply whether the amount is small or large, the actual application may be somewhat different.

In thinking of recipes of today and tomorrow, it must be recognized that they will be different from those used in the past. Many ingredients are different from those used by our grandmothers. Equipment is quite different, calling for different techniques. Our food standards are changing. More emphasis is being placed on simplification. Work is continually being done to improve the palatability and nutritive value of our food products. All of these should be considered and incorporated in modern recipes.

In the previous paper on the "Evaluation and Simplification of Recipes" (1), the following were discussed:

(a) The form of writing a recipe.
(b) Measuring of ingredients.
(c) Procedures that can be eliminated.
(d) Use of certain techniques.
(e) Inclusion in recipe of ingredients and directions to insure good results.
(f) Inclusion of the newer findings.

These are all important in recipe construction. In this paper I shall pursue the subject further, discussing:

(a) The basis for some commonly accepted procedures. Can these procedures be changed to improve the quality, simplify the method, or perhaps lower the cost?

(b) Variables—how and why these may affect the quality.

(c) Analysis of a few recipes.

In examining many cookbooks—both large and small quantity—it was of interest to note, for example, that in most the same method was given for making starch-and-egg-thickened puddings and pie fillings. But, most of these same cookbooks gave a different method of making a cooked salad dressing, another product containing starch and egg and in many cases the same proportions. If one method results in a saving of time, energy, and dishes over the other, why not use it?

TEMPERATURE CONSIDERATIONS

The usual method for pie fillings and puddings is as follows: Cook the liquid, starch, and sugar together until maximum thickness and good flavor is reached. Then combine with the eggs and continue cooking an additional 2 min. However, in making a salad dressing, the egg yolks are added at the beginning. What is the basis for the commonly accepted procedure for preparing the puddings and pie fillings, and why can a good product also be obtained with the method used for the cooked salad dressings? The answer lies in the fact that in working with starch and eggs, two temperatures are concerned, that for starch gelatination and maximum thickness which is high and that for egg coagulation which is comparatively low. The method for the puddings and pie fillings attempts to take care of both these temperatures—the high temperature for complete starch gelatination, then the addition of the eggs to prevent over-coagulation or lumping. But why does a smooth, good product result with the cooked salad dressing method, that is, the addition of the egg yolks at the beginning? Could this same method be followed for the puddings and pie fillings? Results in both small and large quantity work show that good results *can* be obtained with this method.

It may well be asked why a smooth product can be obtained here when a separated custard is such a good example of the effect of high temperature on egg cookery. In the salad dressings and pie fillings, starch is present with its protective action which prevents the lumping of the egg at the higher temperatures, hence a good product is obtained. What are the advantages of adding the egg yolks at the beginning?

(a) A saving of dishes. The starch, sugar, a little cold liquid, and egg yolks can be mixed in a pan or upper part of double boiler, then the milk, hot or cold, added to this mixture.

[1] Presented at the 35th Annual Meeting of The American Dietetic Association in Minneapolis, on October 24, 1952.

TABLE 1

Principles applied to changes in procedures

COMMONLY USED PROCEDURE	BASIS FOR THIS PROCEDURE	CHANGE	EFFECT(S) OF THIS CHANGE
Ice Cream			
The use of 8–18% butterfat because of consumer preference for the higher per cent of fat.	Fat interferes with crystal growth and lubricates the crystals, producing an ice cream with a smooth, velvety texture. The over-run is from 50 to 100%.	Soft frozen desserts may be made with 4–6% fat and 11-15% nonfat milk solids.	The high percentage of nonfat milk solids interferes with crystal growth and tends to produce a fine-textured product. The advantage is in the lowered cost and the use of the surplus nonfat milk solids. The over-run is from 35 to 50%.
Fudge or Fudge Frosting			
Cool the sirup undisturbed to a lukewarm temperature before beating.	The sirup is thicker if cooled before beating. This results in a smooth, creamy product.	The use of large amounts of such materials as evaporated milk, chocolate tidbits, butter, and marshmallow cream. The sirup is beaten hot.	Thickness of sirup is increased and crystal growth interfered with. The product is fine-textured and creamy. The sirup is beaten more easily and faster. The cost is higher.
Soft Meringues and Pie Toppings			
Baked at 300–325°F., with meringue placed on a cold base.	Low baking temperature prevents the toughening and shrinking effect of high heat on protein.	Baked at 400–425°F. for a shorter time, with the meringue placed on a hot base.	More tender, less sticky meringue on cutting. Less leaking due to adequate coagulation attained by continued cooking after removal from the oven—with the hot base.
Angel Food Cakes			
Baked at 325°F.	Low baking temperature prevents the toughening and shrinking effect of high heat on protein.	Baked at 425°F. for a short period of time.	More tender, moister cakes with larger volumes. Approximately the same internal temperature is obtained, probably due to the insulating effect of the quickly formed crust.
Sponge Cakes, Jelly Rolls, and Chocolate Rolls			
A long beating time for the egg yolks or whole eggs.	Produces a cake of large volume and fine grain.	Sugar is added to the egg whites when beaten to the foamy stage. The beating is continued until a stiff, fine foam is obtained. Unbeaten egg yolks are added one at a time to this meringue, followed by beating at low speed only enough to mix well.	Cakes of good volume and fine even grain. Beating time considerably lessened. It is easier for the inexperienced cook to obtain a good product.
Ice Tea			
3-min. steeping of double-strength tea.	Steeping time short enough to extract good flavor but to prevent bitterness by the extraction of only a small amount of tannin.	Add twice the amount of tea to cold water. Allow it to stand overnight in the refrigerator.	Well-flavored tea with no bitterness. Tannin almost insoluble at the low temperature.

(b) A saving of time in not adding the yolks at the end.

(c) A somewhat thicker product or the use of less starch.

(d) Lack of chance of thinning due to insufficient cooking of the yolks.

PRINCIPLES AND APPLICATIONS

Other commonly accepted procedures have a sound basis for their use. In some changes the same basic principle is applied, although the procedure may be different. In others it may vary. A few of these are considered in Table 1 under the following headings: product, commonly used procedure, basis behind this use, change, and effect or effects of the change.

These examples illustrate that the principle behind some commonly accepted procedures may still be carried out, but in a different way, or that there may be a good explanation for a change. Compare and see which best suits your situation.

VARIABLES

Variables can easily creep into recipes. One of the most important is the human element in carrying them out. Just why five cakes vary in quality when made by five different people using the same mixer,

TABLE 2

Effects and explanations of variables

EFFECT	EXPLANATION
Milk and Cream	
Homogenized milk curdles more readily than unhomogenized in making soups, creamed food, and other products where milk is added.	The protein is probably denatured during homogenization, especially if high pressure is used.
Homogenized cream will not whip.	In homogenization, the protein is used to surround the fat globules, and not enough is left to surround the air bubbles.
Homogenized thin cream may curdle more readily when added to coffee, than unhomogenized.	High pressure in homogenization may have been used.
Custards made with homogenized milk are thicker and take about twice as long to bake as compared to those made with unhomogenized milk.	Heat penetration is slower.
Homogenized cream produces a smoother ice cream than unhomogenized.	Homogenized cream is thicker, allowing more air to be beaten in; also, there are more fat globules to interfere with crystal growth.
Fats Used in Cakes	
Fats containing emulsifiers improve the grain and increase the volume of high-sugar cakes and cakes mixed by the 4-min. method.	Fat with occluded air bubbles is more finely dispersed than without the emulsifier.
Plastic fats produce cakes with finer grain and texture than oils, melted fats, and less plastic solid fats.	The incorporation of air in the plastic fats improves the texture. Air cannot be incorporated in melted fats or oils, and less is incorporated in the nonplastic solid fats.
Temperature of Baking Cakes	
The volume of high-sugar cakes increases with increased baking temperatures, when baked at 300°, 325°, 375°, and 425°F.	In high-sugar cakes, the proteins should be coagulated early in the baking process.
Cakes baked at the higher temperatures have more rounded tops than if baked at a lower temperature.	
There is less shrinking from the sides of the pan with the high baking temperature.	
Different Flour Sifters	
More tender or fallen baked products.	There may be a difference of about 2 Tbsp. flour sifted with one sifter compared to another. In products such as plain cakes, muffins, and most other quick breads, the product is more tender with the reduced flour. In rich cakes there is a tendency for the cake to fall.
Depth of Batter in Pans	
If depth of shortened cake batter is at least 1 to 1½ in., cakes have a finer grain and texture than if less.	
Muffins have a peaked top if cups are filled too full.	
Cakes tend to have a rounding, split top if filled too full.	
Fudge squares are more chewy and better if depth of batter is at least ½ in.	

TABLE 2—*Continued*

EFFECT	EXPLANATION
Shape and Size of Pan in Baking Shortened Cakes	
Tops of cakes are flatter when baked in a shallow pan or in a wide, long pan than in a narrow, short one.	
Straight-sided pans give a better textured cake.	
Pans for Angel Food Cakes	
Pans with greater depth and a shorter span from edge to edge give larger volume and more tender cakes.	The short span gives support to the cake. The internal temperature is probably lower.
Beating Egg Whites	
Egg whites beat to a larger volume at room temperature than if colder.	This results from lowered surface tension.
Angel food cakes made with underbeaten egg whites have thick cell walls and are compact and gummy and small in volume.	
In meringues, the addition of 2 tsp. water to an egg white before beating increases the volume.	The thinning and increased volume of the egg white allows more air to be incorporated.
There is less leaking if sugar is added at the foamy stage and beating continued until stiff. Ease of blending is increased, and whites can be beaten ahead of time with less drainage.	Sugar stabilizes the foam.
Overbeaten egg whites lose their elasticity and result in products of less volume.	The proteins of the egg white become more coagulated.
There is less chance of overbeating if sugar is added during beating.	Sugar retards the denaturation of the protein.
Cornstarch	
Variation in thickening when cornstarch is used.	There is a difference in thickening power of cornstarches as purchased.
Different consistencies of starch-thickened puddings and pie fillings.	The size of mold and standing time after product is made affects consistency.
Altitude	
Excellent cakes made at sea level will fall when made at high altitudes unless the sugar and baking powder are decreased.	The atmospheric pressure is less.

TABLE 2—*Concluded*

EFFECT	EXPLANATION
Water	
In making fondant with hard water and cream of tartar, the product is less plastic and coarser in texture unless the amount of cream of tartar is changed.	Hard water is alkaline, and more cream of tartar is needed to neutralize the alkalinity.
Dried beans cooked in hard water soften less readily and have tough skins.	The mineral salts in the hard water cause the effect.
Rice cooked in hard water may be creamy yellow in color or have a greenish tinge.	The yellow color is due to the effect of the alkaline water on the flavone pigment in rice. The greenish tinge is due to the presence of iron in the water.
Tea is cloudy in appearance and likely to have a film on the top if made with hard water.	The minerals in the water cause this effect on the tannins in the tea brew.
Coffee is more cloudy in appearance and may have a brackish flavor if made with hard water.	The cloudiness and flavor are due to the tannates formed.
Green vegetables have a brighter color if cooked in hard water.	The alkalinity of the water affects the chlorophyll pigment.
Cream, particularly thin cream, may curdle when added to coffee made with hard water.	This is the effect of the minerals present in the hard water on the proteins in the cream.
Quality of Eggs	
Shortened cakes made with low quality eggs have a smaller volume than cakes made with good quality eggs.	The coagulation temperature of poor quality eggs is higher. There is less time for baking after this temperature is reached, resulting in smaller volume.
Angel food cakes made with poor quality eggs are smaller in volume than if made with high quality eggs.	The *p*H of the egg is higher and the foam is less stable during baking.
Baked custards require a higher baking temperature if poor quality eggs are used.	The *p*H becomes higher, and the coagulation temperature is elevated.
In hard cooked eggs, there is more of a tendency for a green ring to form at the junction of the yolk and white if poor quality eggs are used.	More ferrous sulfide is formed.

TABLE 3

Examples of possible changes in ingredients or procedures of recipes

INGREDIENTS AND DIRECTIONS	CHANGE	REASON FOR CHANGE
Griddle Cakes		
Customary proportions 1 c. sifted all-purpose flour 1½ tsp. baking powder	A choice of 1½ to 3 tsp. baking powder with a statement giving the reason for the variation.	A thick, tender griddle cake can be obtained with the larger amount of baking powder. An increase in flour will result in a thick griddle cake but it will be less tender.
Tea Punch		
Ingredients Black tea Water Sugar Lemon juice Ground lemon rind *Usual directions* Add tea and ground lemon rind to boiling water. When cool, add rest of ingredients. Strain.	Add tea and lemon halves to the boiling water. Steep 3 min., then remove tea. When cool, remove lemon rind and add rest of ingredients.	Not grinding the rind saves time both in grinding and washing the grinder. There is little or no difference in flavor. Less tannin is extracted with the shorter steeping period, resulting in a less bitter punch.
Baked Beans		
Usual directions Soak overnight in water. Drain off water, cover with fresh water. Cook until skins wrinkle on exposure to the air. Add rest of ingredients and bake.	Give a choice of soaking overnight or rapid method of rehydration by adding the beans to boiling water, boiling 2 min., removing from the heat, and allowing to soak 1 hr. Cook in soaking water. Underline or emphasize: *cook until skins wrinkle before adding the rest of the ingredients.*	Comparable or superior palatability with less time if rapid method of rehydration is used. If molasses, ketchup, or brown sugar is added too soon, the softening will be retarded because of the acid and the beans will not be done in the expected time.
Refrigerator Ice Cream		
Directions Combine ingredients and pour into freezer tray. Freeze in freezing compartment of refrigerator.	Pour ice cream mixture into freezing tray or trays to no greater depth than 1 in. If necessary, divide the mixture and freeze in more than one tray.	There is more rapid freezing, resulting in the formation of smaller crystals.
Cream of Tomato Soup		
Customary proportions 1 c. milk 1 c. tomato juice ⅛ tsp. soda Seasonings *Usual directions* Heat milk and tomato juice separately. Add soda and seasonings to tomato juice. Combine with cold milk, heat, and serve.	Add tomato juice to thin white sauce. Heat and add seasonings just before serving. Omit the soda.	The flour in the white sauce will help prevent curdling. Salt should be added just before serving to lessen the chance of curdling. The soda is omitted because of the destructive effect on ascorbic acid and the natural flavor.

TABLE 3—*Concluded*

INGREDIENTS AND DIRECTIONS	CHANGE	REASON FOR CHANGE
	French Fried Potatoes	
Usual directions Soak cut potatoes in water for an hour or more. Dry. Fry at 375°F.	Choose potatoes which have been stored at room temperature for at least a week. After cutting, soak in salt water for an hour or more. Dry. Fry at 370° F. until tender but not brown. Remove, and just before serving, heat the fat to 390°F. Brown the potatoes in the hot fat.	Potatoes stored at room temperature have less sugar than those stored at a lower temperature. Potatoes with a high sugar content brown too rapidly, do not become crisp, and have an astringent flavor. Soaking in salt water shortens the frying time as well as salting the potatoes. Two fryings give a better quality product as well as reducing the final frying time.

time, and speed, and with the same weighed ingredients is hard to explain, but they do. Some of these can be overcome by practice, development of skills, and complete directions.

There are other variables. For example, the *p*H or degree of acidity or alkalinity in baked products is important. Work has been done to show the marked effect of *p*H on the retention of flavor. In commercial cookies of the shortbread type, if the *p*H value is above 7, that is, on the alkaline side, the flavors are destroyed, while at *p*H values below 6.5, on the acid side, they are well retained.

Proportions given in recipes may be the cause of this. Excess soda is commonly used to produce a red devil's food cake, but little of the natural chocolate flavor is retained in this type of cake. You may well ask why, then, is this cake so popular? Its popularity is probably due to its tenderness, caused by the excess soda.

Some work was recently reported on applesauce cakes. The effect of the addition of soda in varying amounts was to reduce the natural flavor of the fruit. The cakes made without soda were superior in flavor but slightly acid. Baked products can also be tenderized, while better retention of flavor is achieved if they are kept slightly on the acid side. This is being done to some extent at present by the addition of a little cream of tartar, or by the use of baking powder with sour milk or buttermilk. With too much acid, an unpleasant acid flavor may develop, and the acidity may be so great that the product will fall. But with the right amount, baking powder biscuits are very white and tender, muffins are more tender with a cake-like texture, and plain cakes have more of the qualities of rich cakes.

In addition to wrong proportions, varying acidities in the ingredients may affect the *p*H. Fruit juices, sour milk, buttermilk, and molasses are examples where this might occur. Recipes used in the South with phosphated flour might be failures in the Middle West where the flour has nothing added to counteract the excess soda commonly found in many southern recipes.

Other variables are discussed in Table 2 under the headings of: variable, effect on the product, and explanation where possible.

CHANGING RECIPES

In analyzing and evaluating recipes, changes can often be made to simplify them, to improve the quality, to increase the nutritive value (making use of the newer findings), or perhaps to obtain different results which may be more acceptable to some people. It would be possible to go through cookbooks and find many such recipes that could be changed. A limited number have been chosen for consideration. In most cases the complete recipe has not been given but only that part that applies to the suggested change. Such changes are considered in Table 3 under the following headings: the ingredients and directions, in part or whole; the change; and the reason for the change.

These are only a few examples of possible changes. With the great stress on simplification, with the new and different products, with our changing standards, and with our greater knowledge about attaining good quality, recipes will need to be changed to keep up with the times. Check your recipes and see how they can be changed to suit your purpose better.

REFERENCE

(1) Janssen, P. Z.: Evaluation and simplification of recipes. J. Am. Dietet. A. 28: 425, 1952.

Fluoridated Salt

The possibility of using fluorides in table salt as an alternative to fluoridated drinking water has been raised by Dr. Gunnar Santesson, a Swedish physician, until recently working at the University of California Medical Center, San Francisco. Studies with hamsters have indicated that such fluoridated salt may be effective in caries prevention but further studies are needed.—*New York Times, April 20, 1952.*

Contribution of Calcium in Self-Rising Cornmeal to Diets of Sharecropper Families[1]

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THIS article will show the effect of substitution of self-rising for plain degerminated cornmeal on the calcium content of the diets of 223 farm share-cropper families. The data from these families (192 Negro and 31 white) were taken from the two Mississippi samples of the Southern Family Food Consumption Study (1, 2). The study was limited to families with a husband, wife, and at least one child between the ages of two and eighteen years living at home.

This study was undertaken because: (a) The diets of the sharecropper families were very low in calcium and the use of self-rising degerminated cornmeal would be one method of improving their calcium intake. These families used relatively large amounts of plain degerminated cornmeal, but did not use self-rising cornmeal. (b) The use of self-rising cornmeal would not involve a change in food preparation methods. (c) Added cost of using self-rising cornmeal would be negligible, since it costs practically the same as the plain cornmeal.

For the purpose of this analysis, the 223 families have been classified into three groups according to the extent to which their diets furnished specified percentages of the National Research Council's recommended allowances for calcium (3) (Table 1).

TABLE 1

Classification of families according to recommended calcium allowance and intake

CLASSIFICATION ACCORDING TO CALCIUM RECOMMENDATION OF NATIONAL RESEARCH COUNCIL (3)	NUMBER OF FAMILIES
Intake 100% of allowance or over	63
Equals 67-99 per cent of allowance	37
Intake below two-thirds of allowance	103

In Table 2 is given the average nutritive value per nutrition unit per day of food used by families in each of the three calcium groups. As shown, families whose calcium intake met the National Research Council's allowance or more also had the other eight essential nutrients in amounts which met the other recommended allowances. Families whose calcium was less than two-thirds the National Research Council's allowance had intakes of protein, vitamin A values, and riboflavin in amounts that were much below recommended allowances. Protein, vitamin A, and riboflavin, as well as calcium, are supplied in generous amounts by milk and milk products.

Since there were so many families, however, with diets very low in calcium, it would seem that in addition to increasing the milk supply, other programs are needed. One suggested by this article is a shift from the use of plain to self-rising cornmeal. According to the Agriculture Handbook No. 8 (4), 1 lb. degerminated plain cornmeal has 27 mg. calcium and 1 lb. self-rising meal has 1189 mg. or 1.16 gm. per pound more than the plain meal.[2] The calcium in self-rising meal is in a form which is considered to be nutritionally available. A shift from plain to self-rising meal would, therefore, supply approximately the recommended allowances of calcium for one of the seven days during the report week.

A study of kinds and amounts of foods consumed by the three groups of families shows need for a many-sided approach to this problem of improving the calcium intake of these families (Table 3). Families with intakes meeting or exceeding the National Research Council's allowance for calcium had about six times more milk and milk products than those with less than two-thirds the National Research Council's allowance. Twenty-six per cent of the families in the "less than two-thirds" group used no milk during the study week. Many others used it in small amounts only.

[1] Published with the approval of the Director, Mississippi Agricultural Experiment Station, Paper No. 288, New Series, September, 1952. Received for publication September 26, 1952.

[2] The Director of the Technical Service of a large chemical company selling anhydrous monocalcium phosphate to corn millers thinks that these figures are on the conservative side. He states that 10 to 15 per cent more calcium is introduced by the self-rising cornmeal.

TABLE 2

Average nutritive value per nutrition unit per day of food used during one week by 223 sharecropper families in Mississippi, as classified by calcium intake standards of the National Research Council (3)

NUTRIENT	AVERAGE NUTRITIVE VALUE PER NUTRITION UNIT PER DAY		
	Families receiving 100% or more of calcium allowance	Families receiving 67–99 per cent of calcium allowance	Families receiving less than two-thirds of calcium allowance
Calories	4020	3450	2940
Protein (gm.)	94.5	72.8	56.7
Calcium (gm.)	1.30	0.79	0.46
Iron (mg.)	20.6	18.1	15.1
Vitamin A value (I.U.)	7500	5250	3750
Thiamine (mg.)	2.9	2.5	2.1
Riboflavin (mg.)	2.9	1.9	1.3
Niacin (mg.)	23.6	21.8	17.4
Ascorbic acid (mg.)	83.2	55.5	50.3

Since milk is our best source of calcium, the main approach to increasing the calcium supply needs to be, of course, on milk and milk products, and especially on home-produced milk and milk products. There is a relation in value of home-produced food used and calcium content of the diet as shown in Table 4.

Families with a milk cow or cows consumed more milk. However, many of these families had no cow or pasture. Furthermore, their incomes were low. The median net income and number of members in households with less than two-thirds of the calcium allowances were $709 per year and 6 persons respectively. For the group of families whose diets supplied the recommended calcium allowances or more, the median net income was $956 and number of persons, 5. For the other calcium group, it was $872 and 5 persons.

Thus, since there were so many of these families with diets below recommended allowances for calcium, several approaches to improving the calcium content of the diets are needed, and it is suggested that one of these approaches be the use of self-rising degerminated cornmeal. At the time of the food study (February, March, and April, 1948), little self-rising degerminated cornmeal was used in Mississippi, and none was used by the families studied. Nor, according to merchants selling to such families or to the millers shipping cornmeal into the study area, is it used to any extent today.

FOOD PREPARATION HABITS NOT AFFECTED

These families are already familiar with at least one leavened cereal product. They use self-rising flour much more than plain flour. Weekly per capita consumption of the 223 families averaged 0.58 lb. for plain and 1.72 lb. for self-rising flour.

TABLE 3

Types and amounts of foods consumed per person by 223 sharecropper families during one week, classified by calcium intake standards of the National Research Council (3)

FOOD GROUP	AVERAGE AMOUNT PER PERSON		
	Families receiving 100% or more of calcium allowance	Families receiving two-thirds of calcium allowance	Families receiving less than two-thirds of calcium allowance
Milk and milk products (total milk equivalent) (qt.)	4.89	1.94	0.78
Meat, poultry, fish (lb.)	1.68	1.60	1.29
Eggs (number)	4.08	2.31	1.53
Dry peas, beans, nuts (lb.)	0.36	0.46	0.33
Tomatoes, citrus fruits (lb.)	0.49	0.43	0.43
Leafy green and yellow vegetables (lb.)	0.87	0.60	0.49
Potatoes (sweet and Irish) (lb.)	1.00	0.80	0.70
Other vegetables and fruits (lb.)	1.04	1.02	0.57
Grain products (total flour equivalent) (lb.)	4.84	4.51	3.80
Fats and oils (lb.)	1.54	1.41	1.25
Sugar and sweets (lb.)	1.66	1.32	1.21
Degerminated corn meal (lb.)	1.21	1.04	0.80
Undegerminated corn meal (lb.)	0.37	0.32	0.42

TABLE 4

Relation of cost of home-produced food and calcium content of sharecroppers' families' diets during one week

GROUP	MEDIAN MONEY VALUE OF HOME-PRODUCED FOODS	MEDIAN EXPENSE FOR FOOD PER PERSON
Families receiving 100% or more of calcium allowance	$5.91	$8.80
Families receiving 67–99% of calcium allowance	3.25	8.56
Families receiving less than two-thirds of calcium allowance	1.86	8.62

Furthermore, use of self-rising cornmeal would not involve a change in recipes. The two most common recipes for making cornbread used by the families in this study were for: (a) *corn dodgers*: cornmeal, salt, and cold water, shaped into cakes and patted with grease so that they will brown nicely, and baked; and (b) *buttermilk bread*: 2 c. cornmeal, 1 tsp. salt, 1½ c. buttermilk, ¾ tsp. soda, and shortening (an egg is added sometimes).

These two recipes were prepared in the Home Economics Laboratory, using both plain and self-rising cornmeal. The breads from the self-rising cornmeal were judged to be "better" because they were lighter. Two lots of bread were prepared by recipe (b) using self-rising cornmeal, one without the soda and the other with ⅜ tsp. soda. There seemed to be little, if any, difference.

The percentage of these families who used baking powder in making cornbread was negligible. Both

TABLE 5

Improvement in calcium intake possible with use of self-rising cornmeal

GROUP	PERCENTAGE OF FAMILIES IN SURVEY	PERCENTAGE IF SELF-RISING CORNMEAL WERE USED
Families receiving 100% or more of calcium allowance	28	41
Families receiving 67–99 per cent of calcium allowance	26	27
Families receiving less than two-thirds of calcium allowance	46	32

phosphate and sodium aluminum sulphate baking powder are high in calcium, but even though these types of baking powder are popular in the area, they were not used by these families in preparation of their cornbread.

CALCIUM CONTRIBUTION OF SELF-RISING CORNMEAL

A shift in the use from plain to self-rising cornmeal would have changed appreciably the distribution of families approaching the National Research Council's recommended allowance for calcium as shown in Table 5.

Had self-rising cornmeal been used, about one-third rather than about one-half of the families would have had calcium values of less than two-thirds of the allowance. The use of self-rising cornmeal would have shifted some families from the lower to the middle calcium group, and some other families from the middle to the top group.

Substitution of self-rising cornmeal for plain cornmeal seems to be one practical approach to increasing the calcium content of diets of low-income families in areas where consumption of degerminated cornmeal is relatively high. Self-rising cornmeal is a good source of calcium. Its use would not involve a change in preparation habits or extra expense to purchase meal.

REFERENCES

(1) Family Food Consumption in Three Types of Farming Areas in the South. 1. An Analysis of 1947 Food Data. Southern Cooperative Series, Bull. No. 7, June, 1950.

(2) Family Food Consumption in Three Types of Farming Areas in the South. 2. An Analysis of Weekly Food Records—Late Winter and Early Spring, 1948. Southern Cooperative Series, Bull. No. 20, December, 1951.

(3) Food and Nutrition Board: Recommended Dietary Allowances, Revised. National Research Council Rep. & Circ. Series No. 129, October, 1948.

(4) Watt, B. K., and Merrill, A. L.: Composition of Foods—Raw, Processed, Prepared. U.S.D.A. Agriculture Handbook No. 8, 1950.

Corn in Central America

There is a high degree of variability among corns actually consumed in Central America, a degree of variability great enough to have important nutritional consequences. In several different varieties of corn, all grown in one locality, the majority of the variation is genetic in origin and indicates a hopefulness for selecting corns for higher nutritive value.

It has been recognized in recent years that the selection of varieties of corn for increased yield and resistance to disease alone might not really be improving the nutrition of the population, and increasing attention has been given to the selection of corn for its protein content and in some cases for its oil content. From analysis of several varieties, it appears that the protein content of corn does not necessarily bear any direct relation to the content of tryptophan, methionine, and lysine. Sample No. 20, a corn widely used in one Guatemalan village, has a protein content of approximately 7 per cent, yet its methionine content is higher than that of another sample with nearly 12 per cent protein. This indicates that the selection of varieties for nutritional value should be based on the content of the key amino acids and not specifically on the protein content.

The protein and methionine content of *teosinte*, a near relative of corn which grows wild and in a few areas is used for cattle feed and for human food in time of famine, is more than double that of the ordinary field corns. There are two possible practical applications. One would be the use of *teosinte* flour, which makes very good *tortillas*, and to enrich corn or wheat flours or tortilla mashes. Another interesting possibility derives from the fact that *teosinte* can be hybridized with corn. The first generation hybrids look pretty much like corn and have the same chemical composition as corn, but through selection of the second generation cross, it should be possible to select varieties more nearly like corn and with some of the improved protein and methionine content of *teosinte*.

The National Research Council in cooperation with the Technical Cooperation Administration and the Rockefeller Foundation has a project underway for the preservation of indigenous strains of maize in the Americas which may be helpful in maintaining some of the strains having desirable amino acid composition.

—Excerpted from address by Dr. Nevin Scrimshaw, Director, Institute of Nutrition for Central America and Panama, given before the Food and Nutrition Board, April 24, 1952. Proc. Food and Nutrition Board 12: 24 (May), 1952.

Nutritional Status of Ten Family Groups in Washington State

II. Vitamin A Nutrition[1]

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IN A previous paper (1) the plan and sample of a nutrition-education survey[2] was described. This study was conducted in a small city in southeastern Washington for one year, starting in November, 1949. One of the main purposes of this study was to determine the dietary patterns of a selected group of families in the State of Washington. In this paper the adequacy of vitamin A in the diets of the families studied will be considered.

INDICES USED

Four indices commonly used to describe vitamin A nutriture were applied: (a) records of dietary intakes, (b) vitamin A and carotene blood serum determinations, (c) dark adaptation, and (d) degree of xerosis of the conjunctiva.

The *record of weighed food intake* has been used as an acceptable approximation of vitamin A nutrition if the duration of the food record is long enough and is representative of the general dietary pattern. This index has increased value if supplemented with more objective determinations.

Vitamin A and carotene levels of blood serum are often used as indices of vitamin A nutriture. Yudkin (2) has suggested that dietary sources are reflected in serum vitamin A levels. In a Newfoundland study (3), 30 to 80 mcg. per 100 ml. was used as the "normal" blood serum vitamin A level. Jolliffe (4) has reported 20 to 30 mcg. per 100 ml. to be the lower limit of normal.

Harris *et al.* (5) found the range of serum carotene values for seventy normal people six to eighty years of age of mixed sexes to be 80 to 370 mcg. per 100 ml. The Committee on Nutrition Surveys (6) suggested that the lower limit of normal for carotene is between 50 and 100 mcg. per 100 ml.

Dark adaptation has long been used as a measure of vitamin A nutriture. Hume and Krebs (7) suggested that dark adaptation was a useful criterion for determining vitamin A deficiency. However, this method has been questioned by other workers. There would seem to be little doubt that dark adaptation is impaired in clinical cases of avitaminosis A. However, it is questionable whether this is the only cause of impaired dark adaptation so that it can be used as a specific test and whether it is an accurate means of diagnosing subclinical symptoms of vitamin A nutrition. Chieffi and Kirk (8) found no correlation between dark adaptation time and vitamin A plasma levels of middle-aged and old people, but a significant though moderate correlation between adaptation time and age.

Yarbrough and Dann (9) concluded that a single measurement of visual threshold cannot be a reliable indicator of mild avitaminosis A. This is in agreement with the conclusions of Steven and Wald (10) who suggested the need for determining also the stability and lability of the threshold. Hunt and Hayden (11) stated that if the threshold measurements were to be used to determine vitamin A deficiency, a series of tests of the individual would be necessary during a period of administered intake of vitamin A because: (a) the temporal and error variations of the threshold of an individual are large; (b) the threshold level in a particular test does not indicate the probable response to therapy; and (c) threshold level is affected by many other factors as well as vitamin A. Bodansky, Lewis, and Haig (12) concluded that the plasma vitamin A level is considerably more sensitive than the dark adaptation tests as an indicator of vitamin A deficiency.

Conjunctival xerosis has been used to indicate the

[1] Scientific Paper No. 1158, Washington Agricultural Experiment Stations, Pullman. Received for publication September 11, 1952.

[2] Supported by McCall's Corporation, New York City.

presence of subclinical avitaminosis A. Many investigations support the observation that in vitamin A deficiency these changes are marked. Kruse (13) states that this biomicroscopic examination of the eye is a valuable means of detecting early avitaminosis A but does not imply that the ocular lesion is the first or the most important change. Furthermore, he states that "xerophthalmia is not synonymous with avitaminosis A." Anderson and Milam (14) found in a nutrition survey of 1010 persons that there was no correlation between severity and incidence of conjunctival changes detected with the slit lamp and the level of the vitamin in the diet or in the blood plasma. Robertson and Morgan (15) concluded from a study of nurses that conjunctival thickening is not caused by vitamin A deficiency.

Since each of these four tests has been commonly used as an index of vitamin A nutriture, it seemed wise to use all four in appraising the vitamin A nutriture of the group studied.

EXPERIMENTAL PROCEDURE

Six experimental and four control families received identical medical and dental examinations at the beginning of a one-year period. The detailed examinations included a dark adaptation test, a slit lamp examination of the conjunctiva, determination of serum vitamin A and serum carotene levels, as well as other tests that may be indicative of physical health and nutritional status. A record of weighed food intake was kept for seven consecutive days for each member of all ten families. The initial tests and measurements were repeated at the end of one year with all individuals. During the interim, an educational program was provided for the six experimental families only.

The four methods used to describe the nutritional status of these subjects in regard to vitamin A were:

(a) Daily vitamin A intake was calculated[3] from the seven-day dietary records.[4] The food eaten by each person was weighed on a Hanson 1000-gm. dietetic scale by each homemaker after instruction in the use of the scale and the procedure to be followed. Vitamin A content was computed and the mean intake compared with the recommended daily allowances of the National Research Council (17).

(b) The method of Bessey *et al.* (18) was used for determining serum vitamin A and serum carotene levels. Intravenous blood was drawn from each subject before breakfast, following an overnight fasting period.

(c) The method of Jeans *et al.* (19) was used for dark adaptation.

(d) The slit lamp examination[5] for conjunctival xerosis was used. A total of twenty-four areas, twelve for each eye, were used to describe the extent of conjunctival thickening. The limbic and middle thirds of both the temporal and nasal areas were divided subjectively into six parts, the condition of each area being described as transparent or as to the degree of translucency. The total extent of the xerosis in the twenty-four areas examined was arbitrarily classified into five groups as follows[4]:

Class I: Little or no xerosis of the conjunctiva.
Class II: Slight translucency.
Class III: Some translucency.
Class IV: Marked translucency.
Class V: Predominantly opaque.

RESULTS AND DISCUSSION

In Table 1 are shown the initial and final vitamin A intakes, serum vitamin A and serum carotene levels, dark adaptation levels, and a classification of the degree of thickening of the conjunctivæ.

Vitamin A Intake

The vitamin A intake of the experimental and control subjects, as determined by calculation for the initial dietary records, may be described as good. Only three—*16*, *18*, and *23* (Table 1)—out of the twenty-nine members of the experimental group had intakes below that recommended by the National Research Council (16) for their respective ages.

Because the initial intake of vitamin A of the experimental familes as an entire group was so near to, or more than, the accepted recommendations, improvement through education was difficult to demonstrate. Initially, only two members of Family D, Subjects *16* and *18* (Table 1), had intakes that were low. At the end of the year, five persons—Subjects *14*, *15*, *16*, *17*, and *21*—had intakes below the recommendations for their ages. However, Subject *21* had moved away from home and thus could not benefit from the educational program given.

Subject *23* improved her intake from below 5000 I.U. at the first appraisal to above that figure at the final test.

The initial intake of the control families was slightly less than that of the experimental group. All five members of Family J (Table 1) received less than the recommended allowances initially. However, their final food records indicated improvement to the extent that only Subjects *46* and *47* still maintained a vitamin A intake below the recommendations. The final food record indicated that none of the control group whose intake initially was

[3] Calculated from Agriculture Handbook No. 8, Composition of Foods—Raw, Processed, Prepared (17).

[4] Calculation of dietary records and classification of conjunctival xerosis were done at the Ellen H. Richards Institute, The Pennsylvania State College, State College.

[5] Done by Dr. Paul Carney, Research Physician, Ellen H. Richards Institute, The Pennsylvania State College, State College.

TABLE 1

Initial and final results of four tests used to determine the level of vitamin A nutrition

SUBJECT	AGE AT INITIAL TEST	FAMILY	VITAMIN A INTAKE		SERUM VITAMIN A		SERUM CAROTENE		DARK ADAPTATION		CONJUNCTIVAL THICKENING	
			Initial	Final	Initial	Final	Initial	Final	Initial	Final	Initial	Final
Experimental Families												
	yr.		*I.U.*	*I.U.*	*mcg./100 ml.*	*mcg./100 ml.*	*mcg./100 ml.*	*mcg./100 ml.*	*millifoot candles*	*millifoot candles*	*class*	*class*
1	28	A	10,500	11,900	67.0	64.7	152.3	176.8	6.45	1.94	II	III
2	30	A	5,600	14,200	61.5	33.3	145.8	101.6	1.31	2.28	II	III
3	6	A	16,700	14,200	39.7	30.8	181.8	118.6	2.64	7.00	III	III
4	4	A	11,400	8,100	47.9	43.3	170.0	119.0	—	—	III	III
5	56	B	19,000	44,600	55.6	48.3	131.4	77.9	2.85	0.78	III	III
6	46	B	14,500	37,400	63.7	47.1	252.4	160.8	10.65	7.00	II	II
7	13	B	6,000	22,400	59.8	25.1	115.2	74.2	2.85	3.12	II	III
8	12	B	7,100	25,500	45.9	73.8	108.3	186.4	4.26	3.28	IV	IV
9	44	C	10,700	21,600	64.7	70.5	76.4	87.8	6.45	3.87	II	III
10	43	C	7,000	23,000	44.0	70.8	132.2	197.4	1.94	3.66	III	III
11	76	C	5,500	16,500	77.6	53.7	199.1	131.0	10.65	10.65	II	I
12	13	C	11,700	14,800	35.6	37.8	117.0	129.4	4.26	3.28	IV	IV
13	11	C	10,700	15,700	48.3	34.3	89.1	83.3	0.53	0.68	III	III
14	52	D	9,600	4,300	76.0	72.7	91.4	95.8	6.45	13.50	II	IV
15	51	D	7,200	4,200	41.2	50.4	173.5	197.4	8.28	4.26	II	III
16	74	D	3,700	3,700	30.8	47.0	85.9	122.8	6.45	12.60	I	I
17	12	D	5,400	4,600	52.8	28.6	135.4	139.5	6.45	2.40	IV	IV
18	7	D	2,500	3,800	26.7	23.4	84.0	108.4	6.45	2.28	III	IV
19	45	E	14,000	12,000	41.9	65.3	123.9	136.2	1.78	5.04	II	I
20	36	E	5,400	11,400	44.1	46.3	133.4	103.0	2.40	2.85	II	I
21	19	E	9,800	4,500	54.5	—	133.8	—	6.54	4.20	III	II
22	16	E	7,800	11,400	46.1	59.4	114.5	109.4	2.28	2.07	III	IV
23	13	E	4,900	13,800	45.9	27.0	189.0	97.8	3.66	2.64	IV	IV
24	6	E	25,700	13,400	32.5	44.6	147.5	142.9	4.26	3.28	III	III
25	4	E	12,400	13,000	39.9	26.8	108.7	113.4	—	—	III	IV
26	35	F	24,400	28,000	52.3	51.4	73.0	73.6	3.28	5.04	II	III
27	34	F	13,900	21,300	50.9	39.6	169.1	170.1	3.87	4.26	I	II
28	7	F	5,800	14,400	41.3	34.0	158.1	125.5	5.40	11.70	II	III
29	4	F	6,300	12,800	37.8	43.5	229.3	169.6	—	—	II	II
Control Families												
30	32	G	11,200	13,900	65.7	51.8	201.8	137.9	2.28	2.28	II	III
31	31	G	5,800	7,600	33.7	47.0	152.7	196.4	3.28	2.07	II	II
32	6	G	6,600	10,200	42.7	34.6	191.0	182.3	6.45	3.87	III	IV
33	2	G	6,300	8,000	—	—	—	—	—	—	III	III
34	36	H	17,700	6,700	71.7	53.8	333.7	298.5	2.85	3.66	III	III
35	36	H	12,700	10,800	54.1	39.1	498.7	317.3	2.64	4.26	II	III
36	6	H	6,500	6,000	63.1	31.5	346.2	209.1	5.40	2.85	III	IV
37	4	H	15,100	4,500	36.8	54.0	306.4	326.8	—	—	II	III
38	2	H	5,300	3,900	42.9	32.9	286.0	277.3	—	—	III	II
39	32	I	9,600	11,600	57.3	43.8	145.8	137.5	5.00	2.85	II	II
40	29	I	8,900	9,400	34.9	40.7	186.4	119.8	4.60	2.85	II	II
41	63	I	7,500	9,000	55.2	48.6	151.4	140.3	3.10	2.85	II	II
42	6	I	5,800	10,800	39.8	35.9	263.7	139.1	4.60	3.12	II	III
43	3	I	5,900	11,000	44.2	33.1	233.7	145.0	—	—	III	IV
44	44	J	3,000	6,200	74.0	52.7	169.2	124.3	5.97	7.60	I	II
45	48	J	3,700	5,100	61.0	46.8	164.9	131.4	7.60	9.00	I	II
46	17	J	4,500	1,600	53.1	36.1	146.7	133.0	2.85	5.40	II	III
47	15	J	3,300	5,000*	39.8	32.6	87.5	99.2	6.45	0.28	IV	III
48	7	J	2,300	5,700	28.2	—	95.1	—	6.45	3.28	II	III

* Daily allowance of 6000 I.U. required, since he was sixteen years old at the time of the final test.

"adequate" had decreased his vitamin A intake to levels below the recommendation for his age.

Thus it may be concluded from the records of food intake that the members of all ten families, for the most part, met or exceeded the recommendations of the National Research Council for vitamin A. This is comparable to the situation found in Snohomish County, Washington, by Hardy (20) where only 4 of 100 families had inadequate dietary vitamin A.

It is interesting to note that at the time of the initial test no one in either the experimental or control group had a vitamin A intake below 50 per cent of the recommendations for his age. Only Subject *46* had an intake below this level at the final test. Only six (12 per cent) of the forty-eight people initially, and five persons (10 per cent) of the group finally, had intakes below 90 per cent of the recommendations.

These values seem to be considerably higher than those reported by Young and Pilcher (21), from a Groton Township, New York study. They found that 5 per cent of the males and 10 per cent of the females surveyed had vitamin A intakes below 50 per cent of the recommended daily allowance, while 27 per cent of the males and 40 per cent of the females had intakes that were below 90 per cent of the standard. A nutrition survey of farm families (22) revealed that about 60 per cent of the families in a Georgia county and 30 per cent of those in an Ohio county who were studied failed to meet the recommendation.

Vitamin A and Carotene Serum Levels

Both initial and final vitamin A and carotene serum levels of the experimental and control groups were within normal or lower-limits-of-normal range. (Normal vitamin A = 30 to 80 mcg. per 100 ml.; lower limits of normal vitamin A = 20 to 30 mcg. per 100 ml. Normal carotene = 100 mcg. per 100 ml. and above; lower limits of normal carotene = 50 to 100 mcg. per 100 ml.)

Only one person in the experimental group, Subject *18*, initially had a vitamin A serum level in the lower-limits-of-normal range. All others in this group were within the normal range. Likewise, in the control group, only Subject *48* had a vitamin A level that was in the 20 to 30 mcg. per 100 ml. range. Serum carotene levels for these two subjects were also in the lower-limits-of-normal range, while food records indicated a vitamin A intake below the standard.

The final serum vitamin A levels were found to be somewhat poorer for the experimental group, there being five individuals—Subjects *7*, *17*, *18*, *23*, and *25* (Table 1)—with levels in the lower range. In one case, Subject *16*, the food records showed vitamin A intakes below the accepted standard. The final serum vitamin A levels of the control group improved so that every person studied had 30 or more mcg. per 100 ml. vitamin A.

Six of the experimental group—Subjects *9*, *13*, *14*, *16*, *18*, and *26*—had initial serum carotene levels in the lower-limits-of-normal range. In the control group, Subjects *47* and *48* in the same family were in this category. Both had low initial vitamin A intakes, but only Subject *48* had a vitamin A serum value in the lower range of normal.

At the final test, in three experimental subjects—*5*, *7*, and *23*—the serum carotene levels had decreased from above to below 100 mcg. per 100 ml. Four others—Subjects *9*, *13*, *14*, and *26*—showed no perceptible change, having values in the lower-limits-of-normal range at both tests. For only Subject *18* had the serum carotene level improved from below 100 mcg. per 100 ml. to above. His dietary intake of vitamin A had also improved.

The serum carotene levels of the control group showed no significant change in the year.

Using serum vitamin A and carotene levels as an index of vitamin A nutriture, one would conclude that all of the people observed had adequate vitamin A intakes. Only two out of both groups had vitamin A serum levels below 30 mcg. per 100 ml.; seven had carotene serum levels below 100 mcg. per 100 ml., and none fell below 70 mcg. per 100 ml.

Dark Adaptation

Jeans *et al.* (19) placed the upper limit of normal at 0.6 millifoot candle for the first reading in the recovery period of a dark adaptation test. However, they recommend that a somewhat higher range be accepted as normal and have arbitrarily set 1.0 millifoot candle as the upper acceptable limit.

Using these recommendations as a standard, only one of the twenty-six experimental subjects old enough to take the test initially had normal dark adaptation. None of the control group had normal adaptation at that time.

There was little improvement in dark adaptation at the end of the year. Only Subjects *5* and *13* of the experimental group had final normal dark adaptation values and only thirteen, or half, showed any improvement.

The control group had one member, Subject *47*, with normal dark adaptation at the time of the final test. Eight of the fourteen studied in this group showed improvement over the initial test.

Dark adaptation did not in any way reflect the same trends shown by the other three tests used. These values would seem to indicate that both the control and experimental subjects had poor vitamin A nutrition. The other tests indicated that the nutritional status of both groups might be described as average or above in this respect.

These data tend to support the conclusions of Hunt and Hayden (11) who suggest factors other

than vitamin A nutrition play an important role in determining threshold values in dark adaptation.

Conjunctival Xerosis

The extent of conjunctival thickening as observed with the slit lamp was divided into five classes as described above.

At the time of the initial test, a total of 25 fell into the first three classes, and 15 in the first two classes. Four were in Class IV, and none in Class V. In the final test, 4 as compared with the initial 2 were in Class I. However, the number in Class II decreased from 13 to 4. Class III contained 13 of the experimental group finally; Class IV, 8; and Class V, none. Thus 21 were in the first three classes finally and 8 in the first two.

The control group at the time of the initial test had 18 in the first three classes and 12 in the first two. Somewhat lower results were observed on the final test, there being a total of 16 in the first three classes and 7 in the first two.

At the initial test (Fig. 1), 27 persons of the entire group of 48 were in Classes I and II, groupings indicative of the less severe manifestations. Judged in this manner, it would seem that the vitamin A nutritional status of these persons might be described as having subclinical symptoms of a minor degree but certainly capable of improvement.

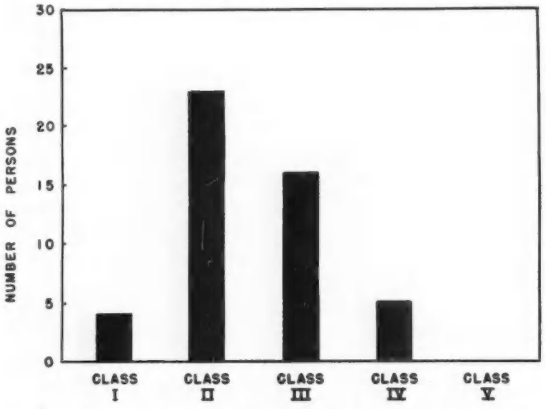

FIG. 1. *Number of persons of both groups who showed conjunctival xerosis, classified according to severity at the time of the initial test.*

This index of avitaminosis A indicated the same trend as that shown by vitamin A intake and serum vitamin A and carotene levels, and would seem to be in agreement with the work of Kruse (13) who stated that biomicroscopic examinations of the conjunctiva for xerosis is a valuable means of detecting early avitaminosis A.

SUMMARY

As a measure of vitamin A nutriture of ten families in southeastern Washington four indices (calculated vitamin A intake, vitamin A and carotene serum levels, dark adaptation, and biomicroscopic observation for conjunctival xerosis) were used at the beginning and end of a one-year period. To determine the effect of an educational program, the families were divided into two groups—six in an experimental group, which received the educational program, and four control families which received no training.

Initial seven-day dietary records revealed that for the most part, the experimental group had vitamin A intakes that were equal to or above the recommendations of the National Research Council. The control group, with the exception of one family, showed adequate vitamin A intake initially. This one family showed some improvement at the end of the year. One may conclude from the intake records that most of the people in both groups had adequate vitamin A intakes.

The serum vitamin A and carotene levels of blood serum of all subjects were within "normal" limits.

Dark adaptation of the experimental and control groups, both initially and finally, was poor as determined by the Jeans method. This test indicated a trend toward poor vitamin A nutrition, which was not supported by the other indices used.

Conjunctival xerosis for both the experimental and control groups either initially or finally, was not severe. Considering the experimental and control families as one group, during the initial test, 43 of the 48 subjects were described as having none to some translucency, 27 as having none to slight translucency, while only 5 showed marked translucency. If conjunctival xerosis may be used as a specific measure of a subclinical manifestation of avitaminosis A, then these observations would seem to indicate that improvement in the nutritional status for this nutrient could be made.

Vitamin A nutriture of the ten families studied may be described as average or above when determined by three of the four methods used in this study.

Because of the high initial intake, the educational program showed little effect of increased vitamin A intakes.

REFERENCES

(1) WILSON, O. M., AND ESSELBAUGH, N. C.: Nutritional status of ten family groups in Washington State. 1. Effect of nutrition education on food habits. J. Am. Dietet. A. 28: 1133, 1952.

(2) YUDKIN, J.: Nutritional deficiency in the pathogenesis of disease. Brit. M. J. 1: 5, 1944.

(3) ADAMSON, J. D., JOLLIFFE, N., KRUSE, H. D., LOWRY, O. H., MOORE, P. E., PLATT, B. S., SEBRELL, W. H., TICE, J. W., TISDALL, F. F., WILDER, R. M., AND ZAMECNIK, P. C.: Medical survey of nutrition in Newfoundland. Canad. M.A.J. 52: 227, 1945.

(4) JOLLIFFE, N.: Personal communication. *Reported by* Beach, E. F., Thomas, R. U., Drummond, M. C., Saunders, C., Moyer, E. Z., and Macy, I. G.: Nutritional status of children. 11. Food intakes and bio-

chemical and medical evaluation of adolescent boys. J. Am. Dietet. A. 26: 681, 1950.

(5) HARRIS, P. L., HICKMAN, K. C. D., JENSEN, J. L., AND SPIES, T. D.: Surveys of the blood plasma levels of vitamin A, carotene, ascorbic acid, and tocopherols of persons in an area of endemic malnutrition. Am. J. Pub. Health 36: 155, 1946.

(6) COMMITTEE ON NUTRITION SURVEYS, FOOD AND NUTRITION BOARD: Nutrition Surveys, Their Techniques and Value. National Research Council Bull. No. 117, May, 1949.

(7) HUME, E. M., AND KREBS, H. A.: Vitamin A Requirements of Human Adults. An Experimental Study of Vitamin A Deprivation in Man: A Report of the Vitamin A Sub-Committee of the Accessory Food Factors Committee. Medical Research Council Spec. Rep. Series No. 264, 1949.

(8) CHIEFFI, M., AND KIRK, E.: Vitamin studies in middle-aged and old individuals. 2. Correlation between vitamin A plasma content and certain clinical and laboratory findings. J. Nutrition 37: 67, 1949.

(9) YARBROUGH, M. E., AND DANN, W. J.: Dark adaptometer and blood vitamin A measurements in a North Carolina nutrition survey. J. Nutrition 22: 597, 1941.

(10) STEVEN, D., AND WALD, G.: Vitamin A deficiency: a field study in Newfoundland and Labrador. J. Nutrition 21: 461, 1941.

(11) HUNT, E. P., AND HAYDEN, K. M.: Medical evaluation of nutritional status. 9. The reliability of visual threshold during dark adaptation as a measure of vitamin A deficiency in a population group of low income. Milbank Mem. Fund Quart. 20: 139, 1942.

(12) BODANSKY, O., LEWIS, J. M., AND HAIG, C.: The comparative value of the blood plasma vitamin A concentration and the dark adaptation as a criterion of vitamin A deficiency. Science 94: 370, 1941.

(13) KRUSE, H. D.: Medical evaluation of nutritional status. 4. The ocular manifestations of avitaminosis A, with especial consideration of the detection of early changes by biomicroscopy. Milbank Mem. Fund Quart. 19: 207, 1941.

(14) ANDERSON, R. K., AND MILAM, D. F.: Biomicroscopy of the eyes in evaluation of nutritional status. Conjunctival changes. J. Nutrition 30: 11, 1945.

(15) ROBERTSON, E. C., AND MORGAN, A. L.: The effects of added vitamin A on the conjunctiva and the level of vitamin A in the blood. J. Nutrition 31: 471, 1946.

(16) WATT, B. K., AND MERRILL, A. L.: Composition of Foods—Raw, Processed, Prepared. U.S.D.A. Agriculture Handbook No. 8, 1950.

(17) FOOD AND NUTRITION BOARD: Recommended Dietary Allowances, Revised. National Research Council Rep. & Circ. Series No. 129, October, 1948.

(18) BESSEY, O. A., LOWRY, O. H., BROCK, M. J., AND LOPEZ, J. A.: The determination of vitamin A and carotene in small quantities of blood serum. J. Biol. Chem. 166: 177, 1946.

(19) JEANS, P. C., BLANCHARD, E., AND ZENTMIRE, Z.: Dark adaptation and vitamin A. A new photometric technic. J.A.M.A. 108: 451, 1937.

(20) HARDY, F.: Study of the dietary level of 100 families. J. Home Econ. 37: 351, 1945.

(21) YOUNG, C. M., AND PILCHER, H. L.: Nutritional status survey, Groton Township, New York. 2. Nutrient usage of families and individuals. J. Am. Dietet. A. 26: 776, 1950.

(22) ADELSON, S. F., AND BLAKE, E. C.: Diets of Families in the Open Country—a Georgia and an Ohio County, Summer, 1945. U.S.D.A. Misc. Pub. No. 704, April, 1950.

Pointers for the Amateur Photographer

Picturing the dietitian or nutritionist at work is not a difficult task, as many photographers have found during the two years that The American Dietetic Association has sponsored contests for photographs showing on-the-job activities of members of the profession.

Ideas for subject matter may be gathered from the Association's pamphlets, *Dietetics as a Profession* and *Dietitians in Demand*. If the photographer can find a human interest angle in the situation of his choice and can portray it with action and possibly with drama, he may assure himself that his entry will be a candidate for final consideration.

In group pictures showing the dietitian or nutritionist with other persons, it is evident that the dietitian or nutritionist should be the prominent figure.

The story must be self-evident at a glance, and there must be no possibility of confusing the dietitian's work with that of any other professional person. For example, the dietitian has desk work, and it is desirable to show this phase of the profession, *but* the photographer using such a situation should exercise his ingenuity in order, somehow, to *picture* distinctly that the worker is a dietitian doing a dietitian's job and not that of another desk worker.

Photographs of a teaching situation are often difficult to obtain and unsatisfactory in result, although this is an important phase of the dietitian's and nutritionist's work. To photograph the dietitian facing a class, the photographer finds that a portion of his film inevitably shows the backs of members of the class; therefore, the scene must be chosen for the tidy appearance of the persons pictured. When hair is too dishabille, or hats are unbecoming or incongruous, it is wise to postpone taking the picture or even to choose another situation.

At all events, the photographs should be of the "candid camera" kind, giving a relaxed, unposed effect. Props should *belong* to the scene, not be introduced for effect, nor should they be displayed in a stilted, unrealistic manner.

Finally, the use to which the photographs may be put should be considered. The American Dietetic Association conducts the contests to obtain photographic material for vocational guidance pamphlets and posters and for publicity purposes; therefore, the situations pictured should be as attractive as possible. For instance, although the hospital dietitian may have to wear a sterile, unpressed, hospital gown for some occasions, this costume does not make a pleasing picture. Choose photogenic persons for the photographs.

Storage Life of Mature and Immature Butternut Squashes[1]

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UNDER normal conditions the commercial squash growers of the New England area store for human consumption only the fully matured Butternut squashes. As a consequence, many well-formed, good-sized immature squashes are eliminated as food. This situation is unfortunate because immature Butternut squashes are a source of several nutrients. Holmes, Spelman, and Jones (1) have pointed out that immature Butternut squashes not only contain ascorbic acid, chlorophyll, and riboflavin but also are a rich source of carotene, the precursor of vitamin A. In fact, these authors found approximately ten times as much carotene in the immature Butternut squashes as in such summer squashes as Early Summer Crookneck (yellow), Early Bush Scallop (white), Zucchini Grey (green), Cocozella Vegetable Marrow (green), and Early Summer Prolific Straightneck (yellow), which are commonly eaten in this area.

The seeming waste of valuable food material in discarded immature Butternut squashes has prompted a study to determine the commercial feasibility of utilizing such squash for human consumption. In this discussion the possible duration of the storage life of immature Butternut squashes is compared with that of mature squashes.

EXPERIMENTAL PROCEDURE

The squashes in this study were produced under carefully controlled conditions by the Eastern States Farmers Exchange, Plant Industry Center at Feeding Hills, Massachusetts. The seed from which the squashes were grown was selected from squashes of known ancestry and thoroughly treated to eliminate seed-borne diseases. The seed was planted May 25 in Merrimac sandy loam soil treated with commercial 5–10–10 fertilizer to the extent of 900 lb. per acre. The squashes were harvested September 28. During the 126-day growing season, the climatic conditions were: 925 hr. bright sunshine, a temperature range of 36°F. to 90°F. with an average of 66.8°; relative humidity of 59 to 96 per cent with an average of 78 per cent and a total rainfall of 17.44 in. but at the start of the growing period, no rain fell for 16 days. To protect the young squash plants from squash bugs and blight, an insecticide containing rotenone, neutral-copper (7 per cent metallic copper), and pyrophyllite was applied to the young plants at frequent intervals during the early growing season.

At harvest the squashes were cut from the vine, and a stem 3 to 5 in. long was left attached to each squash to prevent an open wound on the stem end. Special care was exercised to prevent bruising during transportation from the field to the laboratory. When the squashes arrived at the laboratory, sixty mature and sixty immature (light cream colored, with longitudinal green stripes) were selected. Additional squashes, about twenty or more of each group, were also retained for observation. The experimental squashes were carefully freed of all adhering soil, weighed individually, and placed upon shelves, not touching each other, in darkness. They were reweighed at approximately two-week intervals during the 211-day experimental period. The temperature and relative humidity were continuously recorded with a hydrothermograph. The extremes of temperature were 39° and 74°F. The average weekly temperature varied from 54° to 70°F., with an average of 60° for the total experimental period. The extremes of relative humidity were 68 and 98 per cent, but these extreme values were very temporary. The average weekly relative humidity ranged from 70 to 90 per cent with an average of 76 per cent for the 211-day experiment.

RESULTS AND DISCUSSION

When the squashes were selected for the two experimental groups, the immature squashes were found to be nearly 25 per cent heavier than the mature ones, the average weight being 1316 gm. for the mature and 1624 gm. for the immature. The

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TABLE 1

Storage life of mature and immature Butternut squashes

LENGTH OF STORAGE	MATURE SQUASHES			IMMATURE SQUASHES		
	Number	Average	Weight loss	Number	Average	Weight loss
days		*gm.*	%		*gm.*	%
0	60	1316	0	60	1624	0
16	60	1238	6.0	60	1500	7.6
29	60	1197	9.1	55	1472	9.4
43	59	1151	12.5	54	1425	12.3
57	57	1107	15.9	50	1376	15.3
71	55	1078	18.1	50	1335	17.8
86	52	1042	20.8	45	1315	19.0
99	48	1020	22.5	45	1285	20.9
113	44	997	24.2	44	1252	22.9
129	43	970	26.3	40	1212	25.4
142	42	944	28.3	36	1168	28.1
156	31	915	30.5	32	1119	31.1
171	24	914	30.5	29	1085	33.2
184	19	899	31.7	26	1060	34.7
197	18	876	33.4	24	1033	36.4
211	15	853	35.2	23	994	38.8

squashes were inspected and weighed individually sixteen times during the 211-day experimental period. The data regarding the number of squashes, their average weight, and the loss in weight on the different inspection dates are reported in Table 1. Whenever a squash showed any indication of spoilage, which was usually caused by black rot *Mycosphaerella citrullina*, it was eliminated from the experimental group. During the first 150 days of storage, the spoilage loss was larger for the immature than for the mature squashes, but during the last quarter of the storage period, the trend was reversed and spoilage was greater for the mature squashes. At the end of 211 days of winter storage, 25 per cent of the mature and 38 per cent of the immature squashes remained. The location and character of spoilage were the same for both groups; namely, spots of spoilage first developed at or near the stem end. Since a portion of the stem was carefully retained on each squash and there were no bruised areas, it was concluded that the infection causing spoilage was transmitted to the squash from the vine before harvesting. On the other hand, it was noted that the extra squashes, which were not freed of soil but were stored under the same conditions and in close proximity to the experimental squashes, very frequently developed spoilage under the adhering soil. This very strongly suggests the need for careful removal of all adhering soil before storing.

Both groups of squashes lost weight continuously throughout storage. The rate of weight loss was somewhat larger during the early weeks than during the later stages of storage. However, the rate of weight loss was nearly the same for both groups. In fact, at the first eleven inspections, there was less than 2 per cent difference in the average loss of weight of the mature and immature squashes, but at the last four inspections the immature squashes had lost from 2.7 per cent to 3.6 per cent more weight than the mature squashes. During the seven months of storage, the mature squashes lost an average of 35.2 per cent of their original weight, and the immature squashes lost 38.8 per cent. The loss in the mature squashes is in close agreement with a 36 per cent weight loss reported by Holmes (2) for mature Butternut squashes stored for 245 days in darkness under the same conditions.

During the first month of storage, the immature squashes gradually lost the green stripes and took on the color of mature Butternut squashes, indicating that they had completed maturing during the early part of the storage period. When the immature squashes were opened, the flesh and seeds appeared to be similar to those of the mature squashes. These observations on the maturation of the immature Butternut squashes during the first period of storage are in accord with those previously reported regarding the physiologic activity of mature Butternut squashes during storage. Holmes, Spelman, and Wetherbee (3) found the carotene content of mature Butternut squashes, on a dry basis, was 26.1 mg. per 100 gm. immediately before storage, 30.5 mg. after four weeks, and 48.4 mg. after eight weeks of storage. Phillips (4) also noted an increase during storage in total sugars, namely, 14.9 per cent at harvest, 25.99 per cent after two weeks, and 43.55 per cent at the end of three months.

Judging by the results of this study, one can conclude that it is commercially feasible to store for a limited period well-formed, good-sized immature squashes.

SUMMARY

The spoilage and weight losses of sixty immature squashes stored under experimental conditions for 211 days were compared with similar data collected for mature Butternut squashes stored under identical conditions. During the first portion of the storage period, the immature squashes developed to the mature stage. The spoilage loss and the weight loss were as favorable for the immature as the mature squashes, and it was concluded that it was commercially feasible to place immature Butternut squashes in shelf storage.

REFERENCES

(1) Holmes, A. D., Spelman, A. F., and Jones, C. P.: Ascorbic acid, carotene, chlorophyll, riboflavin, and water content of summer squashes. Food Research 10: 489, 1945.

(2) Holmes, A. D.: Darkness prolongs storage life of Butternut squashes. Food Research 15: 99, 1950.

(3) Holmes, A. D., Spelman, A. F., and Wetherbee, R. T.: Comparison of light vs. darkness for storing Butternut squashes. Food Technol. 3: 269, 1949.

(4) Phillips, T. G.: Changes in the composition of squash during storage. Plant Physiol. 21: 533, 1946.

Current Comment

PRESUPERVISORY TRAINING—A TECHNIQUE[1]

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Through an evolutionary process, a course in personnel management for dietetic interns has been developed at the Veterans Administration Center, Los Angeles, which we consider to be a "pretty good thing." Insofar as we have been able to determine, it has accomplished more in the field of presupervisory training than any other technique attempted previously at our installation.

As an essential adjunct to her technical training, it is vital that the intern be prepared for the management responsibilities inherent in every professional dietetic position. We know that before her cap has had a chance to accustom itself to her head, the young graduate will find herself immersed in a quagmire of problems involving personnel. Joe may come in late with what seems to be a flimsy excuse. Mary is found resting in one of the dining room chairs and complains that she can't work any more today "because I hurt my back moving a table." The pot washers seem to be sullen and antagonistic after having been asked to spend their time washing pots and pans instead of smoking on the loading deck. A new employee just doesn't seem to be "catching on." These and many other problems cause the young graduate to wonder why she took up dietetics as a profession. Some begin a feverish exploration of literature on the subject; others have a good cry; and the rest survive somehow.

Early in 1947, recognizing the importance of preparing the interns for the problems to come, we gave the full battery of "J" courses, including job-methods training developed by the Training Within Industry group during World War II. In addition, we worked out lecture-round tables on job requirements and the efficiency rating system.

During 1948 and 1949 the course was enlarged, on the reasoning that any supervisor at this level would need a broad, general understanding of such subjects as classification, recruitment and placement, personnel records, organization, and counseling. Almost the entire staff of personnel technicians was used in the project. In spite of a considerable amount of time and effort devoted to it, however, the course elicited no apparent response or interest on the part of the interns. To call the course a flop would have been charitable.

During the fall of 1949, when the course content was again being discussed—this time in the light of reports we had sought and received concerning our graduates—we decided a fresh approach was needed. We realized the demonstrated supervisory weakness of our interns in the management of personnel was a common one and not peculiar to our graduates. How to train successfully the future supervisors in their personnel management responsibilities had often been a subject of discussion at national conventions of The American Dietetic Association.

REASONS FOR FAILURE OR SUCCESS

We concluded that we had failed to arouse a proper amount of response or interest among the interns because we had not given them much opportunity to participate, and that while the subject matter was valuable to our way of thinking, we had not convinced the students of its importance. Not having had any previous work experience, the interns couldn't see why such a fuss was being made about the supervisory role they would be called on to assume.

The observation which led us in the direction we finally took was that there had been more spirited discussion and interest in the "J" courses than in the other training sessions. Just why we were not sure, because they are ordinarily considered dry as dust. One course had particularly appealed to the interns—that on job relations. In it, there had been heated discussion over the "cases" and a considerable flow of adrenalin. In thinking it over, we decided that the basic reason was that this was an area in which everyone's ideas were as good as the next person's, and possibly, that the classic cases presented were close enough to the daily situations in the kitchen and dining areas to bear some semblance of reality. We recalled that the discussions of make-believe cases had assumed the bone and sinew of real problems which the interns had encountered.

We had the clue for which we were looking. We needed a course which would hold interest and provide opportunity for more than superficial participation, and which would have a practical application after graduation.

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[1] Reviewed in the Veterans Administration and published with the approval of the Chief Medical Director. The statements and conclusions published by the authors are the result of their own study and do not necessarily reflect the opinion or policy of the Veterans Administration. Received for publication October 13, 1952.

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PRESENT REAL CASES

The plan evolved has now been in operation for the past two years, and it works. We do not know how we could have "missed the boat" before, because it is so simple, reasonable, and effective to teach personnel management in this fashion. The plan, very simply, is to present real cases in the manner outlined in the job relations training course.

Under this plan, the interns are responsible for identifying personnel problems actually existing in the department—problems which appear to be hindering production, problems which are perplexing to the supervising dietitians, problems which appear to be insoluble. Each intern works up a case by getting all the facts, digging up all the regulatory material that applies and, based on the facts, offering several alternative solutions. The remainder of the group is given free rein to challenge the intern-moderator's decision on the nature of the problem, to elicit additional facts, to rule out solutions offered, to suggest others, and to determine jointly what course of action should be followed. In detail, the procedure followed is something like this.

After locating a problem, the intern reviews the case with the instructor in dietetics. This provides an opportunity for the intern to be steered away from problems that have already been presented and away from dead ends that may not be obvious to her. The instructor also is able to suggest leads having to do with policy to be followed and ways and means of getting all of the facts necessary for an adequate presentation.

The intern then contacts the Personnel Division where she is referred to the personnel assistant who should be able to shed the most light on the problem. The personnel assistant helps the intern to work out regulatory aspects of the problem, to locate applicable policies and procedures, to review personnel folders and records, and, if necessary, introduces her to other members of the personnel staff and of the Finance Division for other information. Every effort is made to convince the interns that the personnel staff is at the service of any supervisor who needs or wants similar assistance.

When the intern is ready to present her problem case, the only information she lacks is that which would normally be obtained from the employee. Obviously, no employee is to be made aware that he is being studied.

The intern uses traditional conference techniques in her presentation. The personnel assistant who helped develop the case is invited to sit in on the session, in case the intern gets "stuck" on some technicality. The instructor in dietetics is present to act as consultant on local policy.

Discussions are spirited. Some problems are easily solved; others require exhaustive discussion. Although the identity of the employee is not intentionally revealed, the common knowledge of the work situation makes concealment difficult. We feel, however, that this restraint is an important technique in emphasizing objectivity, a concept important in dealing with personnel problems.

RESULTS OF THE COURSE

What do we think we are accomplishing? Although the interns may not have the authority to put solutions into effect, the many-sided discussions have much value. We hope, above all, that interns will learn the worth of getting all the facts before attempting to solve problems. We hope that in this process, objectivity becomes the base from which each graduate will operate. We hope they will realize that personnel management must necessarily concern itself with a case-by-case review of human problems. We hope that they have learned a technique of problem-solving which will become a lifelong habit. We also hope we have demonstrated the practicality of line-staff cooperation.

This method of training has eliminated nothing in course content or volume. At the same time, we have gained an advantage in timing, with procedure being outlined at the time questions are raised and policy being discussed in context. The interns see the need for developing a personnel program with each link as strong as the next. Having gone through the process of solving a problem, they are better able to see the relationship between effecting sound solutions to problems and increasing the productivity of those concerned.

Interns who have experienced this method of teaching like it. They say it is interesting. They feel that it has widened their horizons and removed some of their misgivings about beginning their first supervisory position. They see a practical application to what they have learned about the cause-effect relationship in human affairs.

We, in turn, await with interest word from the chief dietitians who employ our graduates. How are they making out? Have they learned to deal with difficult problems constructively and objectively? Have they adjusted to their new role more readily? The "pay-off," of course, is in the day-by-day application of a technique and point of view on the job.

DEVELOPMENT OF ADMINISTRATIVE ABILITIES[1]

ALTA B. ATKINSON

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In a questionnaire which came to my desk recently requesting information about a candidate for a position, the questions were grouped under the following headings:

[1] Presented at the 35th Annual Meeting of The American Dietetic Association in Minneapolis, on October 22, 1952.

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(a) Professional ability in home economics and institutional management.
(b) Emotional stability.
(c) Effectiveness in human relationships.

These three areas are the focus of the employer's concept of desirable characteristics for a candidate for a position.

The college curriculum offers the opportunity to gain technical competence in a major field of interest. It should also offer the student an opportunity to come to grips with herself, to try to understand her own reaction to people and to situations, to understand herself in terms of characteristics and abilities which are essential if she is to succeed in her major field. For our purposes, this is the area of administration.

The teacher is challenged to help in the development of emotional stability in the student and her effectiveness in human relationships. We need to use any ability we may have to guide the student to be objective and to analyze and understand herself in her relationship with problems involving either situations or people. Why does one student or intern handle a relationship problem with greater deftness than another? Why does one intern upset the entire organization and another have all of the personnel ready and willing to cooperate with her? Out of our experience, we may think we know the answer to these questions; but how do we guide the student who is failing in leadership? The teacher should—indeed, she *must*—attempt, in addition to making information available, to develop strengths and to strengthen weaknesses. Teaching does indeed wear the mantle of leadership. The leaders must understand the followers, and the followers (students) should, while they are in college or in their internship, be given all the help the teacher can offer to develop latent characteristics for leadership.

We should give thought to the approach to this problem in terms of psychology. Administrators apply its principles constantly in strengthening their goals. For most people serving in administrative capacities, the goal is to accomplish a given task or job. For the teacher, the subject matter of the lecture superimposes itself. Let it be said right here that the lecture is of utmost importance, but judgment must be used lest initiative and creative ability be stifled in the student. We have all known students who were analytical and accurate and who showed much initiative. Step by step they arrive at answers to their problems. There are others who touch only the high spots of the technical part of the work. However, with personality and enthusiasm these students are able to create the impression of having the basic knowledge. All of these qualities or traits are desirable, but the teacher's challenge is to develop the qualities which are missing in each student.

Now let us focus our attention on some of the qualities which I believe we can all agree are important characteristics for the successful administrator. These are not given in the order of their importance.

THE MORAL FACTOR

We think first of the individual in her relationship to herself, then to her associates and to her profession. Finally, we must keep in mind that she is being prepared to take her place as a member of a larger community.

The characteristic which comes to mind first is the moral factor.

(a) Has she integrity? Can she depend upon herself, and can others depend upon her?

(b) Has she loyalty? Is she loyal to family, friends, associates, her college? Does she believe in what she is doing, and does she do it to the best of her ability?

(c) Has she a sense of justice? Will she stand behind what she believes to be right? Or does she vacillate and blow with the winds of opportunity?

(d) Has she courage? Will she make a decision and uphold it? Is she hesitant about making decisions?

THE INTELLECTUAL FACTOR

Next we might consider the intellectual factor. Webster defines intellect as "the power or faculty of knowing, as distinguished from the power to feel and to will." This suggests a high order of mental capacity or understanding.

Closely allied to the intellectual factor are resourcefulness, adaptability, and creative imagination. These are all very desirable characteristics and should be nurtured wherever found. Too much cannot be said in favor of the open mind which suggests lack of prejudice or bias. The open mind permits the growth and development of other intellectual factors.

WORK HABITS

The third set of factors has to do with work habits. Of necessity, the administrator must discipline herself. Time must be budgeted if the maximum is to be accomplished with the minimum expenditure of physical, mental, and emotional energy. No one will deny that regularity, punctuality, perseverance, and accuracy are all important and have great significance in the development of work habits. We are all aware of the tremendous amount of detail which the executive must have within her grasp. This detail must be organized, responsibility for it delegated, and the executive freed from it as much as possible. The executive helps to determine policies, sets the pace, stimulates action, and evaluates results. If encumbered with too much detail in actual operation, the executive loses sight of the real job. We find that many young dietitians fail on jobs because they lose themselves in detail, fail to organize themselves and their work, become exhausted physically and emotionally, and lose sight of the need for stable relationships with other departments.

Only the WHOLE Fruit

CAN GIVE YOU ALL ITS NUTRITIONAL BENEFITS...

As shown by the comparative tables below, only the whole orange can provide all of the valuable nutritional benefits of the fruit.

While orange juice is a popular and pleasant way to provide the daily quota of vitamin C, the fact is that the whole fruit is considerably richer in vitamin C and other nutrients as well as in the protopectins. These substances, the protopectins, are found principally in the albedo, the membranes enclosing the juice sacs and segments, and the fibrovascular bundles.

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Approximate Typical Analyses of Edible Portion and Strained Juice of California Oranges. Amounts shown are per 100 Gm. of fresh weight.

Constituents	Fresh Fruit, peeled	Strained Juice	Constituents	Fresh Fruit, peeled	Strained Juice
Calories	46	46	Inositol	400.0 mg.	200.0 mg.
Protein (including free amino acids*)[1,4]	1.0 Gm.	0.9 Gm.	Biotin	0.004 mg.	0.002 mg.
Fat	0.3 Gm.	0.2 Gm.	Folic acid	0.004 mg.	0.002 mg.
Dextrose and Levulose	4.0 Gm.	4.6 Gm.	Ascorbic acid (vitamin C)	60.0 mg.	57.0 mg.
Sucrose	4.0 Gm.	4.6 Gm.	Flavonoids (vitamin "P")[3]	1.0 Gm.	0.1 Gm.
Protopectins and Pectin	1.0 Gm.[2]	0.1 Gm.	Minerals (total ash)	0.5 Gm.	0.4 Gm.
Citric acid	1.0 Gm.	1.0 Gm.	Calcium	50.0 mg.	11.6 mg.
Malic acid	0.1 Gm.	0.1 Gm.	Phosphorus	30.0 mg.	20.0 mg.
Carotenes (pro-vitamin A)	1.0 mg.	0.16 mg.	Iron	1.0 mg.	0.25 mg.
Thiamine (vitamin B_1)	0.2 mg.	0.086 mg.	Sodium	9.0 mg.	6.0 mg.
Riboflavin	0.1 mg.	0.032 mg.	Potassium	150.0 mg.	170.0 mg.
Niacin	0.5 mg.	0.24 mg.	Magnesium	10.0 mg.	13.0 mg.
Pantothenic acid	0.5 mg.	0.21 mg.	Sulfur	10.0 mg.	8.0 mg.
Pyridoxine	0.2 mg.	0.08 mg.	Chlorine	6.0 mg.	6.0 mg.
			Alkalinity of ash, expressed as K_2CO_3	0.3 Gm.	0.3 Gm.

* Free amino acids include alanine, arginine, asparagine, cysteine, serine, proline, and glutamic, aspartic and gamma-aminobutyric acids. Glutathione is also present.

1. Underwood, J. C., and Rockland, L. B.: Food Research, in press.
2. Miner Laboratories, Chicago, Illinois. (1952)
3. Davis, W. B.: Determination of Flavanones in Citrus Fruits, Anal. Chem. 19:476 (July) 1947.
4. Underwood, J. C., and Rockland, L. B.: Arch. Biochem., in press.

All others from figures taken from the literature and data compiled by Research Department, Sunkist Growers. From known tissue distribution figures, appropriate adjustments have been made to reflect the composition of the entire edible portion in those cases where the original data referred to screened juice.

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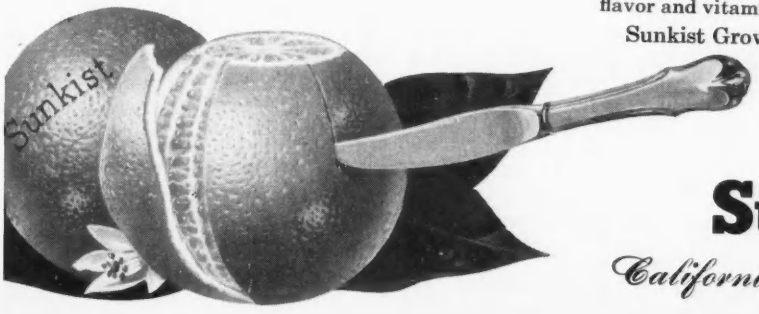

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As a result, morale suffers, and a general breakdown of efficient operation in one or more areas results.

PERSONALITY

Other qualities are related closely to personality. We think of them as being intimately associated with what we term "frame of mind."

The ability to be objective is very fortunate. To be objective does not suggest vacillation. Rather, it is the ability to count ten as it were, while the other point of view is being presented. Most of the problems or situations which present themselves must be divorced from the personalities involved, and objectivity is desirable in preventing the betrayal of the intellect by the emotions.

Let us not overlook enthusiasm, one of the important personality factors which many people stifle to their own frustration.

Cooperation, or the ability to work with others—another factor—has three faces: the ability to cooperate with others on the same level in the organization, and with those who are placed higher in positions of responsibility and authority; and many times, equally or more important, the ability to gain the cooperation of those on the other wing of the functional chart—those for whose work one is responsible.

It would, indeed, be an oversight to fail to mention among the personality traits the high value of a warm, friendly approach to people, and the great value of a sense of humor cannot be overemphasized. These qualities must not be stifled in our zeal to emphasize the very important technical part of the training.

The development of the gentle art of persuasion must not be slighted. When an administrative person has studied a problem carefully, analyzed the reasons for and against a decision concerning it, there may be others whom she must persuade or convince that her decision is well founded. The ability to present facts in an agreeable way is indeed a gift. To persuade without aggravating by domination creates an atmosphere of harmony which permits progress toward the desired goal.

THE EDUCATOR'S RESPONSIBILITY

Such are the factors of which we as teachers must be aware as we lead the students in the development of administrative abilities.

The dean of an eastern college has said: "Many business men consider a college graduate with a major in English the best risk for a responsible executive position. Not that technical information is not important, but it is not much use without the ability to explain, interpret, persuade, and communicate." The report goes on to say, "The liberal arts course helps the student to think and to analyze; hence its value to the budding executive. For every person who fails on the job because he lacks technical experience, there are many who fail because they lack the ability to communicate and get along with others." A comparison often quoted suggests that where 10 per cent fail because of technical incompetence, 90 per cent fail because they cannot get along with their associates.

We should create an atmosphere in which every student feels free and learns how to express herself adequately. This applies also to the written word. Spelling and sentence construction which convey the precise meaning are indeed important, and, although in our field we are not teaching English, we can insist that the student put into good use the English she has been taught. This is all a part of communication which is important in administration. Let us be sure she has the opportunity to express herself adequately and often.

From the freshman year in college right through the internship, the reasons and relationships of everything in the curriculum should be properly stressed. The sciences—physics, chemistry, and mathematics—are fundamental, whether a student chooses hospital dietetics or experimental work in a commercial laboratory. Psychology, sociology, English, and the humanities are vital in positions where relationships with others are important.

Have we shown the freshman why proficiency is required in all of these subjects? After her training has been completed she may realize, too late, where she should have applied herself more seriously as an undergraduate. If, in some way, we can assist in the development of self-motivation by giving the student some realization of her goals and what she needs to achieve them, we will have served a useful purpose. Young people today are more sure of what they want, but they still need help in clarifying their thinking on ways to achieve their goals. Is our guidance and leadership keeping up with their rapid strides?

Effect of Low-Protein on Growth of Sexes

In a study of the effects of dietary deficiencies on the two sexes, experiments were conducted in the laboratories of the Bureau of Human Nutrition and Home Economics on rats. When protein was low in quantity or of poor quality in otherwise good diets, the young female rats were less seriously retarded in growth than the males. Likewise, among adult animals, gross protein deficiencies caused less pronounced malnutrition with a lower death rate among the females than among males. On the other hand, when young rats had diets adequate in all respects, the young male rats gained weight more rapidly than did the females.—*From Report of the Chief of the Bureau of Human Nutrition and Home Economics, Agricultural Research Administration, U. S. Department of Agriculture, 1952.*

Meat...

and the Therapeutic Value of Adequate Protein

Much evidence can be cited in favor of a high protein intake after surgery, trauma, infection, or burns. In supporting the many anabolic and defense mechanisms of the organism in physiologic stress,[1] high-quality protein—such as that of meat—assumes the status of an important therapeutic agent.[2]

Phagocytic activity,[3] formation of antibodies,[4] and rapid healing of wounds[5] are favorably affected by ample protein nutrition. Remission of peptic ulcer,[6] improved resistance to infectious disease,[4] and maintenance of plasma proteins after surgery[7] are other therapeutic effects attributed to an ample protein intake. In the management of ulcerative colitis, protein represents a primary need.[8] Recent advances in the treatment of extensive burns and of hepatic disease emphasize the value of high protein feedings.[9]

These experimental and clinical findings establish the therapeutic value of high protein intake.[10] To assure therapeutic protein adequacy, the dietary should provide a liberal margin of protein over normal requirements.

Meat is an important source of high-quality protein, containing essential as well as nonessential amino acids. In addition, it supplies significant amounts of B group vitamins and of iron, phosphorus, and other needed minerals.

REFERENCES

1. Ravdin, I. S., and Gimbel, N. S.: Protein Metabolism in Surgical Patients, J.A.M.A. *144*:979 (Nov. 18) 1950.
2. Mann, G. V., and Stare, F. J.: Nutritional Needs in Illness and Disease, in Handbook of Nutrition, American Medical Association, New York, The Blakiston Company, 1951, chap. 17.
3. Mills, C. A., and Cottingham, E.: Phagocytic Activity as Affected by Protein Intake in Heat and Cold, J. Immunol. *47*:503 (Dec.) 1943.
4. Cannon, P. R.: The Importance of Proteins in Resistance to Infection, J.A.M.A. *128*:360 (June 2) 1945.
5. Harvey, S. C., and Howes, E. L.: Effect of High Protein Diet on the Velocity of Growth of Fibroblasts in the Healing Wound, Ann. Surg. *91*:641 (May) 1930.
6. Co Tui, et al.: Hyperalimentation Treatment of Peptic Ulcer with Amino Acids and Dextri-Maltose, Gastroenterology 5:5 (July) 1945.
7. Lund, C. C., and Levenson, S. M.: Protein in Surgery, J.A.M.A. *128*:95 (May 12) 1945.
8. Welsh, C. S.; Adams, M., and Wakefield, E. G.: Metabolic Studies on Chronic Ulcerative Colitis, J. Clin. Investigation *16*:161 (Jan.) 1937.
9. Cannon, P. R., et al.: Recent Advances in Nutrition with Reference to Protein Metabolism, Lawrence, Kansas, University of Kansas Press, 1950.
10. McLester, J. S., and Darby, W. J.: Nutrition and Diet in Health and Disease, ed. 6, Philadelphia, W. B. Saunders Company, 1952, p. 19.

The Seal of Acceptance denotes that the nutritional statements made in this advertisement are acceptable to the Council on Foods and Nutrition of the American Medical Association.

American Meat Institute
Main Office, Chicago...Members Throughout the United States

Additives . . .

Soft Bread Not Necessarily Fresh

Chemical bread softeners make it possible to fool the average customer, because softness and freshness are closely related in his mind. In the September 1952 issue of *Today's Health*, Dr. James R. Wilson, Secretary, Council on Foods and Nutrition of the American Medical Association, says that when buying bread, the average consumer prefers a loaf that is soft. Few people have ever heard of chemical bread softeners, which have not been proved unquestionably safe. Furthermore, the chemicals which keep bread appearing fresh make it possible for unscrupulous route salesmen to practice "bread rolling," that is, picking up old bread at one store and delivering it as fresh to another. The practice is condemned by all reputable route men and employers.

The Council views the use of chemical bread softeners with considerable apprehension. "Available knowledge of the possible toxicity of these substances is fragmentary; particularly is evidence lacking as to chronic toxicity. The employment of these agents in the processing of such basic foods as bread and bakery goods as well as other foods, such as ice cream, candy, and peanut butter, could lead to the ingestion of considerable quantities of these materials of uncertain toxicologic action. Unless the complete harmlessness of these agents can be demonstrated beyond reasonable doubt, they should not, in the Council's opinion, be employed in basic foods."

A report in the *Federal Register*, an official governmental publication, stated that "there was evidence tending to show that some of the polyoxyethylene monostearate [the bread softening compound] prepared for food use contained small amounts of poisonous glycols." Dr. Wilson quoted the *Register* as stating bread softeners were extensively used by bakers shortly after World War II to make their bread appear fresh and cut down costs of production, as the compound effectively substituted for the eggs and fats previously used to give softness.

The Food and Drug Administration recently formulated new federal standards for five different kinds of commonly used breads and banned the use of certain chemical bread softeners. However, the rulings have been held in abeyance pending an appeal to the U. S. Court of Appeals by a manufacturer of such compounds.

The American Bakers Association and the American Institute of Baking have also recently adopted a statement of principles about the use of such chemicals in bakery products. Their statement demands that such ingredients be proved completely safe before use.

Concentrated Fruit Powder

Powdered orange juice which can be reconstituted even in ice water has been developed in Albany, California, by the Western Regional Research Laboratory of the Department of Agriculture. The new product stores well under severe conditions and tasters have described its flavor as that of natural orange. Vitamin A and ascorbic acid are well preserved, even after prolonged storage.

Continuing studies already give promise for concentrated powdered juices of other citrus fruits, tomatoes, pineapple, apples, and grapes.

In another investigation at the Eastern Regional Laboratory in Philadelphia, scientists have worked out a process of recovering aromas ordinarily lost in making fruit preserves. The captured flavors can be returned to the preserves to enhance their fruit flavor, or used to flavor other fruit products or to give a "natural" zest to beverages, fountain sirups, candies, ice cream, and other desserts. The new method is merely a modification of a process for recovering volatile flavors from fruit juice.

Processing Reduces Insecticide Residue

Washing and cooking vegetables before eating is "very effective" in removing potentially dangerous insecticide residues left on crops after harvesting. In a report given before the Southwest Regional Meeting of the American Chemical Society in December, Dr. Victor G. Heller, Department of Agricultural Chemical Research, Oklahoma A. and M. College, stated that 97 per cent of the insecticide residue on vegetables was removed in recent tests by thorough washing and cooking in an open kettle. Washing and pressure cooking were not so effective, but nevertheless removed 60 to 95 per cent of the residue. Freezing also resulted in a reduction in residue, although this result had not been anticipated.

This study was concerned with lindane and parathion emulsions, two of the newer insecticides. A variety of vegetables were used, all of which were washed three times except those which were frozen. Cooking procedures included cooking in an open kettle for ½ hr. and pressure cooking at 15 lb. per square inch at 120°C. for 15 min.

Dr. Heller pointed out that the toxicity of the newer insecticides is such that we cannot dismiss the possible dangers of indiscriminate use, although these data would indicate that under proper condi-

EVER NOTICE how people react when they come to the "vegetable" part of the menu? *Unenthusiastic* is the word.

But notice how people *and their kids* react to vegetables cooked with Ac'cent! Folks sit up and take notice when they taste the delicious *natural* flavors that Ac'cent brings out.

Ac'cent, pure monosodium glutamate, is nature's own flavor intensifier, present in all fresh-from-the-garden vegetables. Adding Ac'cent to vegetables (fresh, frozen, canned) *restores* the true flavors lost by time and storage.

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tions of spraying, harvesting, and processing, there would be small probability of the existence of any dangerous quantities of spray residues. The amount of insecticides on plants decreases shortly after application because of the action of sunlight, oxygen in the air, temperature changes, and rainfall, and the residue is further reduced during the various processing operations. The greater the amount of residue present, the greater is the percentage of the residue removed by processing. As the deposit decreases, it becomes harder to remove.

Calcium Content of Commercial Bread

Because of the importance of bread in the dietary of the average city family, the Bureau of Human Nutrition and Home Economics undertook to learn how much calcium is now provided by bread and what proportion of the total calcium in bread comes from milk.

Total calcium content of 402 samples of commercial white bread from 41 states and the District of Columbia averaged 334 mg. per pound loaf. Of this calcium, 35 per cent was estimated to be derived from milk. The remainder was supplied by the flour and such ingredients as mold inhibitors and dough conditioners.

The variation in calcium content of these breads was so great that a person eating the city dwellers' average amount of bakers' white bread—1.44 lb. a week—could get as little as 1 per cent of his recommended calcium allowance from bread or as much as 16 per cent.

To improve breads served in school lunches, the Bureau has developed five formulas for bread containing 6 to 10 per cent milk solids, and varied by use of raisins, whole wheat flour, soy flour, wheat germ, and brewers' yeast. These formulas were published in the past year. Intended for use by schools in drafting specifications for bread orders placed with commercial bakers, they have found favor with many school lunch managers and with institutions, such as hospitals, as well.

Discipline in the Lunchroom

In one high school in Minneapolis last year, the student council tackled the problem of discipline in the lunchroom. In recounting the results during a panel discussion on nutrition in the community at the 35th Annual Meeting of The American Dietetic Association in Minneapolis, Howard Sanden—formerly a member of the school's student council—said that all worked first to create an environment which would appeal to the students. This included obtaining better equipment, comfortable chairs with "shelf" space beneath for books, music, and time after eating for a little extra recreation in the form of "jitterbug and jive." He pointed out that "discipline" is no problem when the students and teachers can work together and think of each other as friends, and he pointed out that when students are given an opportunity to help solve discipline problems, they appreciate it and will work hard at it. He believes that students welcome guidance, but they resist "discipline."

Shortened Cooking of Dry Beans

Dry beans are similar in nutritive value and comparable or superior in palatability to those soaked overnight when soaked for a short time. The Bureau of Human Nutrition and Home Economics, U. S. D. A., recently issued *Development of Rapid Methods of Soaking and Cooking Dry Beans* as Technical Bulletin No. 1051, which discusses work with pea, pinto, large Lima, great northern, and red kidney beans.

The following short method of soaking was found satisfactory: add the beans to boiling water, boil 2 min., remove from heat, and allow to soak 1 hr. in the hot water. All the varieties of beans studied, when soaked by this method and cooked in the liquid used for soaking were comparable or superior in palatability to those soaked overnight.

When the soaking liquid was retained for cooking, a good quality product for all five varieties was produced by adding approximately ⅛ tsp. sodium bicarbonate to 1 c. dry beans and 2½ c. tap water. This small amount of sodium bicarbonate, however, permitted a reduction in cooking time as high as 42 per cent without affecting thiamine or ash content in pea beans (analyses were not made for the other varieties). Palatability was only slightly reduced.

The use of a 4-qt. pressure saucepan at 250°F. (15 lb. pressure) and a covered glass saucepan was also compared. Cooking time in the pressure cooker was reduced as follows (exclusive of heating and cooling time): for great northern beans, from 90 to 3 min.; for large Limas, from 60 to 3 min.; for red kidney beans, from 105 to 3 min.; for pea beans stored at 40°F., from 90 to 5 min.; for pea beans stored at 75°F., from 120 to 10 min.; and for pinto beans, from 120 to 10 min. However, in addition to the cooking times in the pressure cooker, 25 min. were required, on the average, for the beans to heat up to 250° and to cool to 212°C. Palatability scores for beans cooked in a covered glass saucepan and in a pressure saucepan were similar.

Ascorbic Acid-Destructive Factor in Tomatoes

The New Hampshire Agricultural Experiment Station, by crossing garden tomatoes with a small, green-colored product from Peru which is rich in ascorbic acid, has developed a marketable tomato with considerably more ascorbic acid. However, the parent fruit transmitted an enzyme system which destroys ascorbic acid if the tomato is chopped, sliced, or macerated. The enzyme can be inactivated by heat treatment before maceration.

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Book Reviews

The Low Fat Diet Cook Book. By Dorothy Myers Hildreth and Eugene A. Hildreth, M.D. New York: Medical Research Press, 1952. Distributed by Grosset & Dunlap, Inc. Cloth. Pp. 148. Price $2.95.

This book is the third on the same general topic to reach the writer's desk within the past year. It is somewhat difficult to see how this one can be very valuable to the dietitian. Moreover, some of its features make one wonder what the homemaker with no knowledge of food composition or the requirements of an adequate diet might be likely to do with it. Certainly it sets up no safeguards to insure nutritional adequacy of the low-fat diets suggested. The lists of food equivalents, for instance, seem to have been made up from somebody's food tables with no attention to anything but the fat content of the foods in question. One Tbsp. deviled meat is hardly the equivalent of 3½ oz. round steak when you consider protein content, nor is 1 oz. cheese. There is at least reason to question the advisability of unlimited mineral oil mayonnaise, both on the basis of absorption of fat-soluble vitamins and of potential laxative and irritant effect.

The patient is advised to eat no more than one serving per week of any food listed as high in cholesterol; but the suggested menus for a week include an egg for breakfast three times, and French toast once. It is hard to estimate the food value of a menu which begins, "Lots of shrimp casserole." But, judging the week's food plan on the basis of the data given, plus bulk and probable stomach capacity, a day's food seems likely to furnish between 1000 and 1400 calories with 40 to 60 gm. protein per day. Vitamin values are too variable to estimate, and satiety values, especially of the luncheon and dinner menus, seem low enough to encourage "snack" eating.

The book is simple, short (148 pages), and strictly a one-idea cookbook in contrast to the equally simple but amply safeguarded compilation on the same subject by others.—*Ruth Okey, Ph.D., Professor of Home Economics and Biochemist, University of California, Berkeley.*

Essentials of Infant Feeding for Physicians. By Herman Frederic Meyer, M.D. Springfield, Illinois: Charles C Thomas, 1952. Cloth. Pp. 252. Price $6.75.

Although it is written for physicians, this book contains timely and pertinent material for medical, dietetic, and nursing students. It should be made available for reference and guidance.

The history of infant feeding which introduces the information in this book clearly summarizes the present findings in this important area of public health. Under the heading, "Contemporary Historical Contributions to the Progress of Infant Feeding," all allied professional groups will find excellent background material for intensive study.

The evaluation of breast feeding is noteworthy. The best thinking on the subject is perhaps to be found in the survey of the Committee on Maternal and Child Feeding of the National Research Council, which is included.

The chapter on proprietary infant foods emphasizes the extent to which the field has advanced on a commercial basis, as well as the research which is being explored. The discussion on solid food supplements is sound and practical, with basic suggestions which should serve as a helpful guide in the first year of feeding. The most pertinent research as well as the administration of vitamins is more than adequately expressed.

The author realistically discusses the vital importance of understanding the psychologic problems in child feeding. The statement "Feeding problems are formed, not born in the child" poses the recommendation for more knowledge and application in the field of growth and development. A voluminous bibliography is also included.

This book is interestingly compiled, making this reviewer want to continue to read. It has a very pleasant and stimulating atmosphere.—*Eva N. Ylvisaker, Head Dietitian, The Children's Hospital, Cincinnati, Ohio.*

Therapeutic Meal Plans. A New Diet Manual, prepared by the Department of Dietetics and Nutrition, University of Kansas School of Medicine. Edited by Virginia Toews, Berdena Rosenow, and Ruth Gordon, Dietitians. Lawrence, Kansas: University of Kansas Press, 1952. Leatherette. Pp. 111. Price $3.

This diet manual shows a real consideration for many of the problems which arise in attempting to compile a diet manual. The meal plans are all treated as variations of the normal diet. Each diet has been written in a systematic order and includes an estimation for nutritional content. It is to be wondered if the figures have not been carried too far. To say that a diet contains 2661 calories implies an accuracy which is not warranted.

There are a vast number of diets included in the manual, and with the present trend toward fewer diets one questions the need for so many, particularly such ones as high-vitamin, high-iron, high-iodine, rice-fruit, sweet butter, powdered-sugar formula, the numerous liquid variations, and others.

Some of the special rules and the foods to omit may be questioned on certain of the meal plans. The description of the purpose of the diet in many instances seems to be unnecessary since it is a repetition of the title of the diet. It is to be regretted that each diet does not begin on a new page in order to facilitate ease in locating it.

The manual is a convenient size, well-indexed, and contains reference material and numerous tables. An attempt has been made to make the manual of value to the many groups who will use it in a teaching hospital.—*Doris Johnson, Ph.D., Director of Dietetics, Grace-New Haven Community Hospital and Assistant Professor of Public Health (Nutrition), Yale Medical School, New Haven, Connecticut.*

The Art of Making Italian Desserts. By Maria Lo Pinto. New York: Doubleday and Company, 1952. Cloth. Pp. 223. Price $2.95.

This book is a companion volume to *The Art of Italian Cooking*, and like its predecessor is full of imaginative, interesting recipes with a continental flavor.

Setting the stage for the book is a chapter on "Aunt Gioia's Kitchen." This unusual kitchen was a building in itself, erected at Aunt Gioia's request for the unhampered enjoyment of her hobby—cooking. Aunt Gioia became known as *la dolcera* (the pastry maker), and her secrets are presented by the author in over 250 recipes for desserts, candies, confections, preserves, liqueurs, and punches.

Each recipe is identified by its Italian name and the English translation. The chapters on each type of dessert are introduced by hints on methods of correct preparation. Variations of recipes and appropriate garnishes are included, too.

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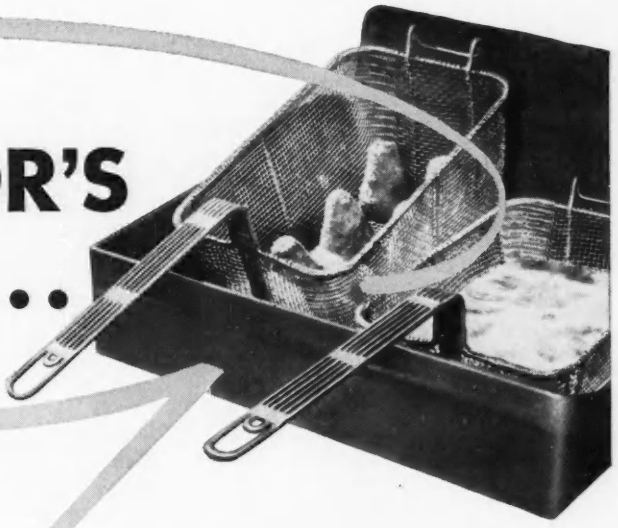

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Anyone searching for the unusual, the tasty, in desserts, should find inspiration in the pages of *The Art of Making Italian Desserts.—Margene A. Wagstaff, Warrenville, Illinois.*

RECENT BOOKS RECEIVED

The Special Diet Cook Book. By Marvin Small. New York: Greystone Press, 1952. Cloth. Pp. 511. Price $2.95.

Annotated Bibliography of Vitamin E, 1950–51. Vol. 2. By P. L. Harris and W. F. Kujawski. Rochester, N. Y.: Distillation Products Industries, 1952. Distributed by the National Vitamin Foundation Incorporated, 150 Broadway, New York 17. Paper. Pp. 106. Price $2.

B-Vitamins for Blood Formation. By Thomas H. Jukes, Ph.D. Springfield, Ill.: Charles C Thomas, 1952. Leather. Pp. 113. Price $4.

Nutrition Education in Elementary and Secondary Schools. By Helen S. Lockhart and F. Eugenia Whitehead, D.Sc. New York: The Nutrition Foundation, Inc., 1952. Paper. Pp. 43. Price $1.

'Twixt the Cup and the Lip. By Margaret Cussler, Ph.D., and Mary L. deGive, Ph.D. New York: Twayne Publishers, 1952. Cloth. Pp. 262. Price $3.95.

What to Cook for Company. By Lenore Sullivan. Ames, Iowa: Iowa State College Press, 1952. Cloth. Pp. 512. Price $3.95.

Good Home Cooking across the U.S.A. By Nell B. Nichols. Ames, Iowa: Iowa State College Press, 1952. Cloth. Pp. 560. Price $3.95.

Therapeutic Nutrition. By Herbert Pollack and Seymour Lionel Halpern with collaboration of the Committee on Therapeutic Nutrition, Food and Nutrition Board. Publication 234. Washington, D. C.: National Academy of Sciences—National Research Council, 1952. Paper. Pp. 94. Price $1.

A Survey of the Literature of Dental Caries. By Committee on Dental Health, Food and Nutrition Board. Washington, D. C.: National Academy of Sciences—National Research Council, 1952. Cloth. Pp. 267. Price $3.

Manual of Applied Nutrition. By Dietary Department, The Johns Hopkins Hospital. Baltimore: The Johns Hopkins Press, 1952. Paper. Pp. 96. Price $2.50.

Human Milk—Yield, Proximate Principles and Inorganic Constituents. By S. D. Morrison. Technical Communication No. 18, Commonwealth Bureau of Animal Nutrition, Bucksburn, Aberdenshire, England. Slough, Bucks., England: Commonwealth Agricultural Bureaux, 1952. Cloth. Pp. 91. Price $1.50.

BIOGRAPHICAL NOTES FROM THE HISTORY OF NUTRITION

Thomas Robert Malthus—February 17, 1766—December 29, 1834

Not all the names that figure prominently in the history of nutrition are those of scientists or physicians. Since 1798, the name of Malthus has appeared at frequent intervals. The man is little known or understood but his name lives on, and his doctrine is discussed whenever population growth and food supply are considered. The Malthusian doctrine, as it is called, was first presented in a brilliantly written essay (1798) arising out of a discussion with his father on the general question of improving society. Malthus' idea was that population, unchecked, increased in geometric ratio but subsistence increased only in arithmetic proportion and that the population would soon outgrow its food supply. The essay aroused endless controversy, and there was much abuse of Malthus. A second edition appeared in 1803; this was a serious, scholarly treatise, revising the earlier work, adding the results of foreign travel, wide reading, and careful study of facts and figures on population increases, and giving much less emphasis to the mathematical ratios.

Malthus felt that he had found the real cause of the continued depression and poverty of the lower classes. Six editions of the essay were published, the last in 1825. Malthus is credited with being the first writer to formulate the law of diminishing returns in agriculture.

Following World War I, Malthus' doctrine was again prominent because of the fear of overpopulation, and today it is still the center of controversy when the world population is estimated at doubling itself in seventy years. There are now two schools of thought: one which believes that research and technologic developments can bring needed food increases and the other which believes that population increases have outstripped possible food production.

Thomas Robert Malthus was born February 17, 1766 in Surrey, England, one of eight children of Daniel Malthus who was the friend and executor of Daniel Rousseau. Malthus was privately educated, then entered Jesus College, Cambridge in 1784 and studied mathematics. He was an excellent student and a prize-winner at the University. He obtained the Master of Arts degree in 1791, took holy orders, and became curate at Albury, Surrey (1796).

Malthus married in 1804 and had two daughters and a son. When a new college for cadets entering the East India Company was founded at Haleybury, he was appointed professor of modern history and political economy. He was a tall, erect man of good health and physical strength, with a sense of humor, and he was a pleasant companion and host. He died suddenly of heart disease on December 29, 1834, and was buried in Bath Abbey.

REFERENCES: Guillebaud, C. W.: *In* Encyclopaedia Britannica, Vol. 14, 1945, p. 744. Bonar, J.: Malthus and His Work. London: Macmillan & Co., 1885. Malthus, T. R.: Parallel Chapters from the First and Second Editions of an Essay on the Principles of Population, 1798: 1803. New York: Macmillan & Co., 1895.—*Contributed by E. Neige Todhunter, Ph.D., Dean, School of Home Economics, University of Alabama, Tuscaloosa.*

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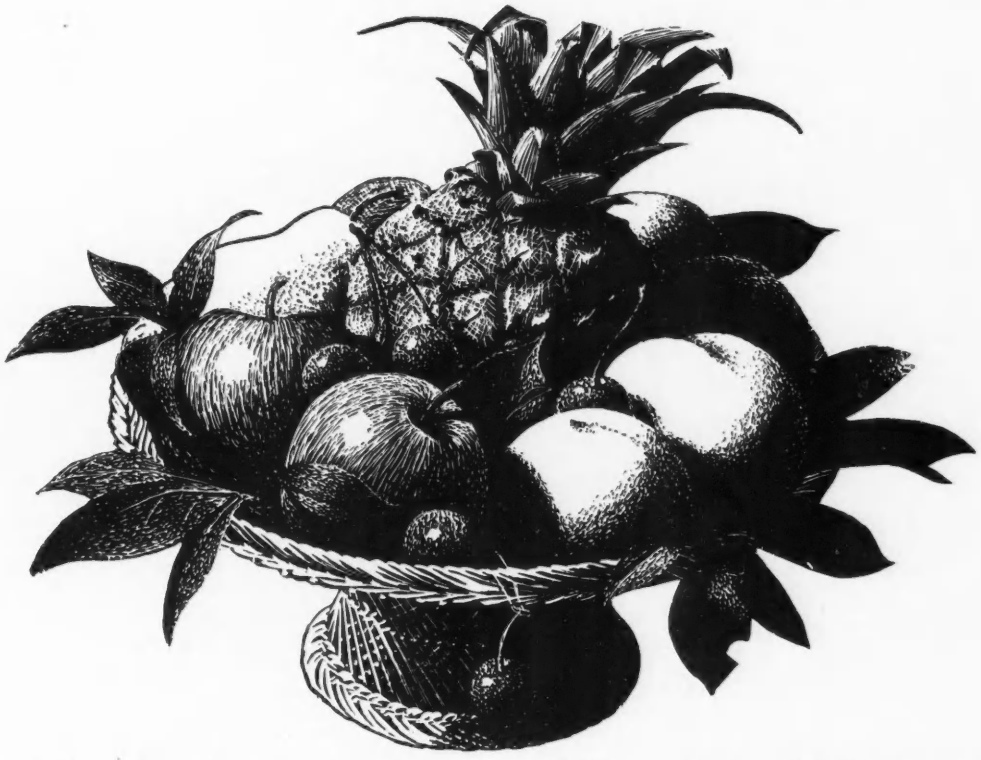

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in frozen fillets of salmon, mackerel, rockfish,
white fish, lake trout and in frozen swordfish steaks *in ice cream*
in packaged beer *in citrus oil emulsions.*

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Current Literature

Contributed by Mildred Bonnell and administrative interns, University of Washington, Seattle; Janette C. Carlsen and Ethel M. Miller, The Johns Hopkins Hospital, Baltimore; Jacqueline Fitzmorris, Dietetic Intern, Veterans Administration Center, Los Angeles; and the Journal staff

AMERICAN JOURNAL OF DIGESTIVE DISEASES

Vol. 19, November, 1952

*The case against mineral oil. G. L. Becker.—p. 344.

Case against Mineral Oil. A survey of the literature does not disclose a valid reason for the use of mineral oil in the treatment of constipation. There can be no doubt that mineral oil and its emulsions should never be used internally because it: interferes with the utilization and retention of calcium and phosphorus, and with the digestion; frequently produces a serious loss of weight; prevents absorption of the fat-soluble vitamins A, D, E, and K, and other nutrients; tends to reduce prothrombin level; and may cause lipid pneumonia. In addition, it may possess minute traces of carcinogenic substances, and makes complete evacuation impossible.

THE AMERICAN JOURNAL OF PSYCHIATRY

Vol. 109, November, 1952

*A case of anorexia nervosa treated successfully by leucotomy. P. E. Sifneos.—p. 356.

Anorexia Nervosa Treated by Leucotomy. Successful leucotomy was performed on a patient with anorexia nervosa. The patient was near death despite prior treatment by electric shock, insulin, and an incomplete psychoanalysis. After surgery, the patient gained 40 lb. and showed great improvement in appearance, interpersonal relations, and loss of tension. Her IQ rose sixteen points. No evidence of apathy, impulsivity, or irresponsibility was noted. Despite this success, leucotomy should be considered only as a last resort when other treatments of a less drastic nature have failed.

AMERICAN JOURNAL OF PUBLIC HEALTH

Vol. 42, September, 1952

*An anaerogenic effect of nitrates and nitrites on representative strains of Salmonella H. S. Tubiash.—p. 1060.

*The rice enrichment project in Bataan, Philippines. E. S. Quiogue.—p. 1086.

Vol. 42, November, 1952

*Study of ninety-eight communities' fluoridating their communal water supply. L. F. Menczer.—p. 1414.

*How National Sanitation Foundation standards are developed. W. D. Tiedeman.—p. 1420.

Nitrates and Salmonella. Salmonella strains, isolated from powdered eggs, and Proteus strains from ground sausage were incubated for 48 hr. at 37°C. Gas formation, but not growth, was completely inhibited in all but one strain by being treated with nitrite nitrogen stock solutions from four sources: sodium nitrate, potassium nitrate, sodium nitrite, and potassium nitrite. In all cases, abundant growth was obtained regardless of aerogenesis. It appears that nitrate and nitrite ions exert a suppressive effect on the aerogenic mechanism of the Salmonella and Proteus genera.

Rice Enrichment Project. Rice, the "staff of life" for about half the world's population, contains in its natural state nutritional values that compare favorably with those of other major cereals. It is better than corn and approximately as good as wheat. White rice, however, contains the least thiamine of any of the major staples and loses a portion of its best protein and most of its fat, vitamins, and minerals in milling. Rice enrichment with thiamine, niacin, and iron seems to be the answer to the problem of providing more adequate nutrition for the rice-eating nations. To test an enrichment program, an investigation was conducted in the Philippines. As a basis for the study, an eight-month clinical beriberi survey was made which disclosed that 12.8 per cent of the total population of Bataan had the disease. Analyses were made for blood thiamine, hemoglobin, protein, ascorbic acid, vitamin A and carotene in serum, and urinary thiamine. Anemia was prevalent and more severe in beriberi cases than in the nonsymptomatic group. A survey of dietary practices showed that the estimated average thiamine intake was below the recommended standard. For measuring the results of rice enrichment, Bataan was divided into an experimental zone where the rice was enriched and a control zone. Mortality statistics from beriberi were compiled at the end of each quarter of the year in both zones. The first full year of enrichment showed a decline of 67.3 per cent in beriberi deaths in the experimental zone, and an increase of 2.4 per cent in the control zone.

Fluoridation. Fluoridation of the community water supply as a measure for controlling dental caries appears to be feasible, to have tremendous public support, to be inexpensive, and, within optimum limits, to be safe and beneficial. These findings are the result of a questionnaire answered by ninety-eight communities fluoridating their water supplies. Ninety-eight per cent of those reporting had fluoridation brought about through action by dental, medical, and public health groups as well as by an informed public.

Developing Sanitary Standards. In the interests of public health, food service equipment should be designed so that it can be maintained with reasonable cleanliness. The food service industry has been forced to discard equipment not meeting local sanitation standards, with resulting economic loss and inefficiency. To avert this situation, nationally accepted sanitation standards for food equipment are essential, and they should be defined by representatives of both industry and public health organizations. As a step in this direction the Joint Committee on Food Equipment Standards was organized in 1949. It has set up standards for soda fountain and luncheonette equipment and is studying spray-type dishwashing equipment. Business, industry, health officers, and the general public will share in the benefits of reasonable food equipment standards which are properly administered and are subject to revision in the wake of progress.

ANALYTICAL CHEMISTRY

Vol. 24, October, 1952

Determination of fluoride in water. M. J. Price and O. J. Walker.—p. 1593.

Vol. 24, November, 1952

*Determination of arsenic in fruits and vegetables. J. C. Bartlet, M. Wood, and R. A. Chapman.—p. 1821.

Arsenic Determination. This is a detailed description of the bromide distillation method of Magnuson and Watson for determining arsenic on fruits. Although organic insecticides have largely replaced arsenical sprays in the fruit industry, appreciable amounts of lead arsenate are still used for apples and a few other fruits, thus requiring a sensitive and accurate method for appraisal of the substance. Tin in canned fruits interfered with the determination, but the interference can be overcome by extracting the tin with cupferron and chloroform. Tables show the arsenic and tin content of several canned fruits and the arsenic content of some fresh fruits and vegetables.

ANNALES MEDICINAE EXPERIMENTALIS ET BIOLOGIAE FENNIAE

Vol. 30, Fasc. 3-4, 1952

*Influence of the nitrogen content of cells on their enzymatic activity. A. I. Virtanen.—p. 234.

*Studies on the vitamin B_{12} content of human blood plasma. J. Jännes.—p. 329.

Nitrogen Content of Cells. The idea has been proposed that the total protein

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of young active cells is enzyme protein and that the nitrogen content of cells is a limiting factor in enzyme formation. In animal tests the effect of protein on the enzymatic activity of liver has been noted. The livers of fasting rats have shown a decrease in the activity of some enzymes in the same degree as or higher than the protein loss of the tissue. A decrease in the concentration of co-enzyme A has been found in the livers of rats on a protein-deficient diet. The extent to which decrease of the enzyme activity, which accompanies the decrease in nitrogen content of liver, is due to the decrease in enzyme proteins is still unknown, but it may be assumed that protein loss is in many cases a decisive factor even in liver. There is room for speculation about the decisive role nitrogen nutrition plays in the formation of enzymes and may have in the origin of new species and forms.

B_{12} in Blood Plasma. Results are given of studies of the vitamin B_{12} level of the blood plasma of five healthy persons and of two patients with pernicious anemia. The method by which the determinations were made is described.

THE BRITISH JOURNAL OF NUTRITION

Vol. 6, No. 1, 1952

*The assessment of the growth of schoolchildren with special reference to secular changes. J. B. de V. Weir.—p. 19.

*The nutrition of Nigerian peasants, with special reference to the effects of deficiencies of the vitamin B complex, vitamin A and animal protein. B. M. Nicol.—p. 34.

Vol. 6, No. 2, 1952

*Some observations on the diet of Jamaican children, with particular reference to liver disease. K. Rhodes.—p. 198.

The feeding of normal and premature infants.

General principles of infant feeding. S. Graham.—p. 207.

The importance of breast feeding. H. K. Waller.—p. 210.

Composition of human milk and factors affecting it. M. Gunther.—p. 215.

Artificial infant feeding. J. N. Smellie.—p. 220.

Difficulties of infant feeding. A. V. Neale.—p. 224.

The feeding of premature infants. V. M. Crosse.—p. 230.

Vol. 6, No. 3, 1952

*Skeletal changes during pregnancy and lactation in the rat: effect of different levels of dietary calcium. G. M. Ellinger, J. Duckworth, A. C. Dalgarno, and M. H. Quenouille.—p. 235.

*The relationships between vitamin B_{12}, folic acid and folinic acid. R. H. Girdwood.—p. 315.

*The nutritional significance of the animal protein factor and antibiotics. W. F. J. Cuthbertson.—p. 330.

Secular Changes in Growth. Published data of heights and weights of school boys in London and Glasgow during the present century have been examined and compared graphically and analytically with the result that secular changes in growth are found to be similar to the difference in growth associated with differences in social conditions. It appears that growth and nutrition are intimately related and that rate of growth is an index of nutrition. Therefore, indices of growth-rate may prove valuable in assessing the nutrition of groups of school children, although the other factors involved make the assessment less useful on an individual basis.

Nutrition in Nigeria. This nutritional study of Nigerian peasants attempts to correlate their state of health and diets. The confusion which may arise in evaluating the effects of deficiencies of single nutrients has often been due to a failure to appreciate the importance of the interaction of one nutrient with another; consequently, observations were derived from data on complete seasonal diets and physical examinations. The incidence of hepatic disease and anemia was high, but the major nutritional diseases were not encountered. Intestinal infestations were considered to be a more important factor in the production of anemia than dietary deficiencies. The results of specific vitamin deficiencies are noted, and it is indicated that lack of animal protein in sufficient supply for good nutrition was also evident.

Dietary Factor in Liver Disease. One of the underlying causes of liver disease in Jamaican children is thought to be dietary. A survey showed that the daily average protein and fat intake of children with liver disease was invariably much lower than that of a group of healthy children. Caloric differences in the diets of the two groups were so slight as to be of no significance. The children with liver disease had a very low intake both of total protein and of first-class animal protein, their monotonous diet deriving its caloric content mostly from sugar and refined cereal foods.

Skeletal Changes in Pregnancy and Lactation. A study was made of the effects of calcium intake on reproductive performance, skeletal change and organ size, and the effects associated with the gestation-lactation cycle. By random selection 144 female rats were placed in 24 equal groups. Four diets were fed to six groups each. Bone resorption during lactation and bone replacement during the next gestation were found in all regions of the femur and tibia irrespective of the level of dietary calcium. The zones rich in cancellous bone were the prime sources of mineral when the dietary provision of calcium was near to adequacy. Compact bone was less subject to resorption, contributing little mineral unless the diet was very inadequate in calcium. There was no evidence of selective solution of bone mineral independent of erosion. Certain physical measurements in bone examination were found to give as accurate an estimate of the effect of diets as chemical determinations. The weights of liver, kidneys, adrenals, and thyroid were not affected by differences in the calcium intake, although at the end of the first gestation, ovaries from severely calcium-deficient rats were considerably heavier than ovaries from adequately fed rats. Fertility was not impaired even in severe calcium deficiency, and the weight of the young at birth or the number of young in a litter was not affected by the level of calcium intake.

Vitamin B_{12} and Folic Acid in Anemia. Experiments indicate the importance of supplying both vitamin B_{12} and folic acid to prevent megaloblastic anemia in the pig. Protein deficiency increases the need for folic acid. Monkeys placed on a low-protein diet have been found to develop megaloblastic anemia more rapidly if there were also an ascorbic acid deficiency. When anemia did develop, folic acid was rapidly effective in treatment. Ascorbic acid was more slowly effective and vitamin B_{12} was ineffective, but B_{12} plus ascorbic acid gave a prompt response. The normal daily intake of folic or folinic acid required to prevent nutritional megaloblastic anemia in man is uncertain. All that can be concluded at present is that vitamin B_{12} and folic acid both appear to be required for normoblastic blood formation, and that ascorbic acid deficiency appears to be related to the development of megaloblastic anemias.

Animal Proteins, Antibiotics, and Growth. Diets composed wholly of vegetable materials are known to be inadequate for the growth of chicks, while foods of animal origin improve growth because they contain vitamin B_{12} and other undescribed growth factors. Supplementation of an all-vegetable ration with fermentation products, used as a source of the vitamin, was found to lead to better growth than that obtained with superoptimal amounts of vitamin B_{12} or with B_{12} plus a source of animal protein factor, such as fish solubles. The growth-promoting activity of the fermentation product seemed to be associated with its aureomycin content. This and other antibiotics were demonstrated to increase growth in chicks when used with vitamin B_{12} to supplement vegetable rations, and even when administered with excellent animal protein rations. It is not known whether antibiotic supplements can fully replace exogenous animal protein factors over the whole life cycle. The different effects of dietary antibiotics on the growth of animals may depend somewhat on the "disease level" or "microbiologic status" of the animals studied.

CEREAL CHEMISTRY

Vol. 29, November, 1952

*Effect of variety on the milling and baking quality of bread and durum wheat flour blends. R. H. Harris, L. D. Sibbitt, and G. M. Scott.—p. 421.

*The effect of various milk serum proteins and their sulfhydryl groups on bread quality. B. L. Larson, R. Jenness, and W. F. Geddes.—p. 440.

The determination of pantothenic acid in wheat. F. Y. Refai and B. S. Miller.—p. 469.

Varieties of Wheat and Baking Quality. Although durum wheat flour is utilized to some extent in breadmaking, it usually produces more yellow and smaller loaves than bread baked from other wheat flours. It has been found that, when used in a concentration of 20 per cent with other flours, durum flour does not decrease loaf volume or affect mixing requirements. Crumb color is not greatly impaired. Protein content, milling, and related data are presented for pure, undamaged samples of varieties of wheat grown in North Dakota, 1950, and for three hard red spring wheats and durum of the same year. Baking data for bread wheats and for durum wheats presented included a consideration of absorption, loaf volume, grain and texture, crumb

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color, crust, and symmetry. Golden rated lowest of the varieties in all respects. The durums were markedly inferior to the spring varieties in all factors except crust appearance. For the durums, Kubanka tested strongest and yielded the best loaves. Bleaching the durum flour increased the blend loaf volume little or none, but improved crumb color significantly and grain and texture slightly. There was no effect on absorption.

Effect of Milk Serum Proteins on Bread Quality. The serum protein fraction of milk is believed to be responsible in part for the deleterious action on dough and bread of insufficiently heated milk or nonfat dry milk solids derived therefrom. Studies of milk serum components and baking tests are described. It appears from these tests that the sulfhydryl groups of milk proteins are not the factor responsible for the poor baking quality of milk which has not received an adequate heat treatment. However, heating apparently determines the extent of "denaturation" of the deleterious factor or factors present.

INDUSTRIAL AND ENGINEERING CHEMISTRY

Vol. 44, October, 1952

*Quicker-than-quick freeze. I & EC Reports.—p. 11A.

Superquick Food Freezing. The use of a liquid freezing medium, rather than air, for the quick-freezing of foods has been developed by a Danish processing company. Freezing speed is increased, resulting in smaller crystals. Thus flavor and quality are preserved by reducing damage to cells. The liquid used is a patented solution of distilled water, glycerol, and ethyl alcohol, the latter substance being prohibited by law in the U. S. for use in food freezing. The Danish claim, however, that the food is frozen so rapidly that absorption of the medium is prevented. All adhering drops are then blown off immediately on removal of the food from the freezing tank. Estimates on cost indicate many savings. Vegetables need not be blanched, and sugar is not added to fruits. Loss of weight in the product is negligible. Items appear to remain at maximum quality standards for two years or more. Produce not adaptable to air freezing, such as whole grapefruit, oranges, tomatoes, melons, cauliflower, bunches of grapes, and herring, can be satisfactorily stored by the Danish method.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

Vol. 150, November 8, 1952

*Modern treatment of diabetes mellitus. H. T. Ricketts.—p. 959.

*Importance of control of diabetes in prevention of vascular complications. N. R. Keiding, H. F. Root, and A. Marble.—p. 964.

Vol. 150, November 15, 1952

*Nutrient deficiencies in low-salt diets. F. M. Allen. Correspondence.—p. 1141.

Vol. 150, November 29, 1952

*Cortisone and corticotropin in rheumatic fever and juvenile rheumatoid arthritis. J. J. Bunim, A. G. Kuttner, J. S. Baldwin, and C. McEwen. —p. 1273.

Treatment of Diabetes. The first step in treating diabetes mellitus is to teach proper eating. It is useful to distinguish between a preliminary test diet and a maintenance diet. The test diet should reduce glycosuria and provide a yardstick by which the inherent severity of the diabetes and the need for insulin may be assessed. A low-carbohydrate allowance of 100 to 150 gm. per day, 1 gm. protein or more per kilogram of body weight, and enough fat to make up the caloric requirement is a basic pattern. The diet should be quantitative. The first consideration in the maintenance period is the caloric value of the diet. Basal requirement is calculated as 20 to 25 calories per kilogram of standard, not actual, weight. The proportion of carbohydrate, protein, and fat may then be determined with as much consideration as possible for the patient's own tastes. A practical procedure is to allow 1 gm. or more of protein per kilogram of body weight, calculate the calories furnished by such protein, subtract these calories from the total, and divide the remaining calories equally between carbohydrate and fat.

Importance of Diabetes Control. The questions are being raised of whether careful control in diabetes pays, and whether late vascular and nervous system complications will appear despite the type of treatment. This study of the incidence and extent of retinopathy, arterial calcification, and nephropathy in 451 diabetic patients seems to indicate that control of diabetes materially decreases the incidence of complications. In these cases the decrease was not influenced by variations in duration, age at onset of diabetes, or insulin dose. It is concluded that only by careful and continuous attempts at control may the late complications of diabetes be prevented or postponed.

Low-Salt Diets. Most hypertensive patients can do well on ordinary mixed diets with strict exclusion of added sodium. In severe or refractory cases, a stricter salt exclusion is needed and may be provided by the "thrice boiling" of vegetables and meats without incurring vitamin or other deficiencies. Direct sodium analyses have shown that the sodium content of such diets with liberal protein can be lower than that of the rice diet. Simplicity, convenience, adequacy, appetizing flavoring, and nondependence on artificial foods should be emphasized so that the diet need not be onerous. Discontinuance of the low-sodium regimen is not recommended because more and more evidence of the role of salt in hypertension is being revealed.

Cortisone in Rheumatic Fever. In an evaluation of the effects of cortisone on rheumatic fever, eighteen children with active rheumatic carditis were treated with cortisone or corticotropin or both, another seven were given cortisone intramuscularly, two received corticotropin treatment, and four were treated with acetylsalicylic acid. Cortisone or corticotropin therapy produced striking and prompt clinical improvement in the extracardiac manifestations of acute rheumatic fever, but the effect on the cardiac manifestations was more difficult to evaluate. At present it is not known whether administration of adrenal cortical hormones results in the prevention or even significant diminution of damage to cardiac structures. As in rheumatic fever, corticotropin or cortisone suppresses both the systemic and articular manifestations in almost all cases of juvenile rheumatoid arthritis.

THE JOURNAL OF BIOLOGICAL CHEMISTRY

Vol. 198, October, 1952

*Studies on the metabolism of iron-containing proteins with radioactive carbon and iron. H. L. Helwig and D. M. Greenberg.—p. 703.

*Cholesterol synthesis from acetate in the diabetic liver. S. Hotta and I. L. Chaikoff —p. 895.

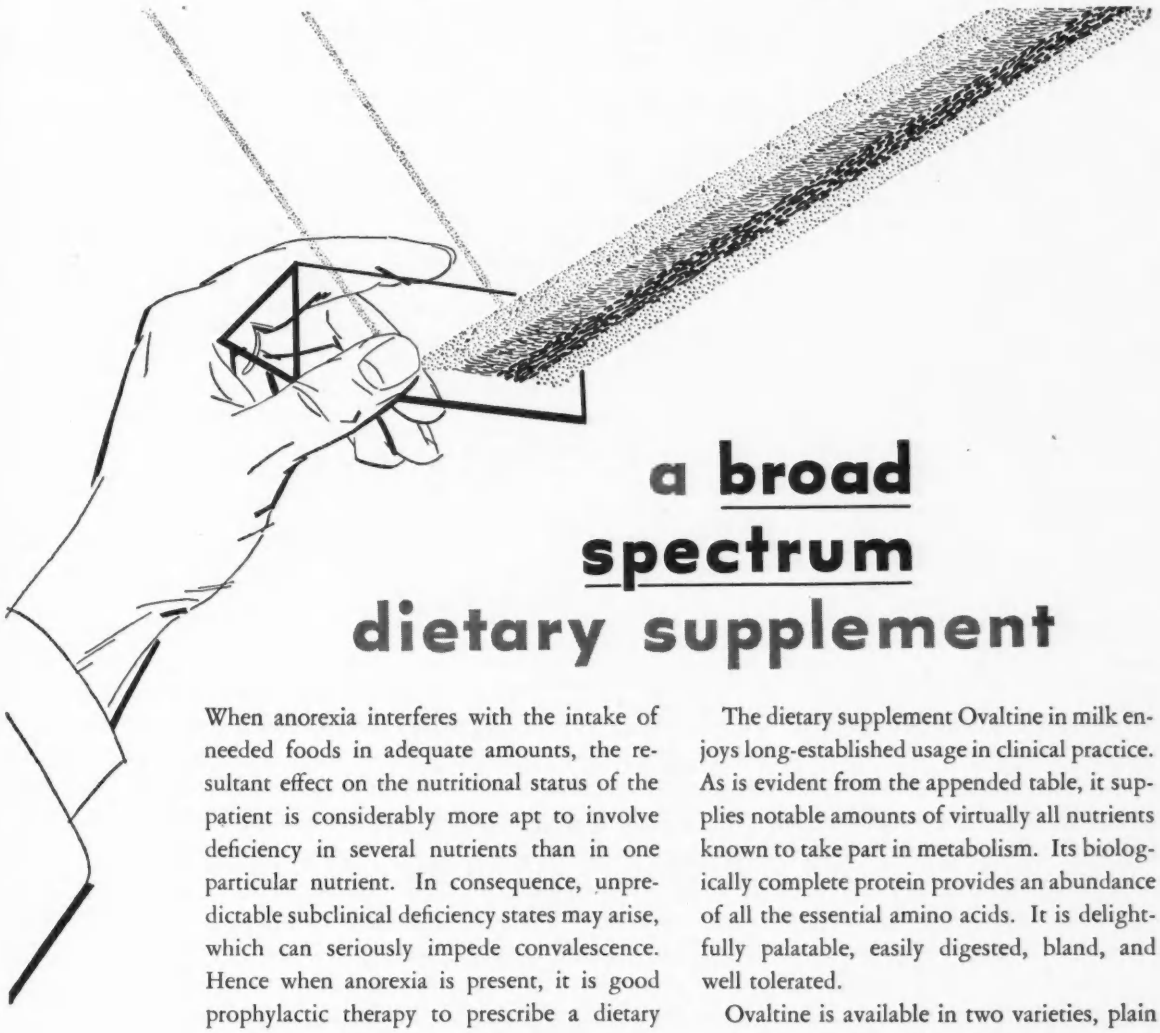
Vol. 199, November, 1952

*The determination of vitamin B_{12} activity in human serum. H. L. Rosenthal and H. P. Sarett. —p. 433.

Metabolism of Iron-Containing Proteins. A comparative study was made of the uptake of intraperitoneally administered C^{14} of methyl-labeled acetate and radioiron by hemoglobin, plasma protein, myoglobin, liver ferritin, cytochrome *c*, and bone marrow of guinea pigs. In normal animals the uptake of C^{14} per gram protein was greatest in ferritin, followed by plasma, marrow, hemoglobin, myoglobin, and cytochrome. Incorporation of iron per gram protein was greatest in marrow, followed by plasma, ferritin, hemoglobin, myoglobin, and cytochrome. Turnover rates of C^{14} and iron in ferritin, plasma, and marrow were greater than in the heme proteins. The lability of liver ferritin was indicated by its rapid turnover of C^{14}. Treatment of guinea pigs with polycythemic doses of cobalt increased the uptake of iron by plasma and ferritin, and during recovery, the uptake of iron by hemoglobin and marrow was depressed. In the posthemorrhagic state, radioiron was incorporated into hemoglobin and myoglobin at similar rates, but uptake by cytochrome of iron was increased and turnover of marrow iron was accelerated.

Cholesterol Synthesis in Diabetes. A definite increase in cholesterol formation was shown in the livers of alloxan-diabetic rats, but in further demonstrations it appeared that, with insulin injections, the capacity of the liver to synthesize cholesterol is reduced. In evaluating the factors responsible for the early development of vascular degeneration in the diabetic, the relationship believed to exist between endogenously synthesized cholesterol and arterial degeneration should be considered along with the possibility of an increased rate of cholesterol synthesis by the liver.

Vitamin B_{12} in Serum. Preliminary treatment of human serum necessary for microbiologic determination of vitamin B_{12} activity with *Lactobacillus leichmannii* was studied with samples of serum in the postabsorptive state. The results indicate that the vitamin B_{12}-active material in serum is firmly bound and is not readily released by dialysis but is liberated by heating under suitable conditions.



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FLUORINE	3.0 mg.	*NIACIN	6.7 mg.
*IODINE	0.15 mg.	PANTOTHENIC ACID	3.0 mg.
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*PHOSPHORUS	940 mg.	*VITAMIN A	3200 I.U.
POTASSIUM	1300 mg.	VITAMIN B_{12}	0.005 mg.
SODIUM	560 mg.	*VITAMIN D	420 I.U.
ZINC	2.6 mg.		

*PROTEIN (biologically complete)	32 Gm.
*CARBOHYDRATE	65 Gm.
*LIPIDS	30 Gm.

*Nutrients for which daily dietary allowances are recommended by the National Research Council.

THE JOURNAL OF CLINICAL INVESTIGATION

Vol. 31, November, 1952

*Urinary excretion of amino acids in patients with cirrhosis of the liver and in normal adults. G. J. Gabuzda, Jr., R. D. Eckhardt, and C. S. Davidson.— p. 1015.

Amino Acid Excretion in Cirrhosis. The urinary excretion of the eight essential amino acids and of arginine and histidine were determined microbiologically in twenty patients with cirrhosis of the liver and in fourteen normal individuals maintained on comparable conditions of study. The average excretion of arginine, leucine, methionine, phenylalanine, threonine, tryptophan, and valine was slightly higher in the patients than in the normal group; that for histidine, isoleucine, and lysine was slightly lower. In the patients, an increased urinary excretion of methionine and tryptophan and a decreased excretion of isoleucine were the most marked deviations from the normal. Large increases in the quantity of protein consumed by four of the patients did not result in the urinary wastage of amino acids. Improvement in liver disease in three patients was accompanied by progressive decreases in the urinary excretion of these amino acids. It is concluded that changes in the urinary excretion of amino acids in patients with cirrhosis of the liver depend more on the activity of the patient's disease than on the dietary protein intake.

THE JOURNAL OF CLINICAL NUTRITION

Vol. 1, September–October, 1952

*The dietary treatment of hypertension. I. H. Page and A. C. Corcoran.—p. 7.

*Growth failure in school children. Further studies of vitamin B_{12} dietary supplements. N. C. Wetzel, H. H. Hopwood, M. E. Kuechle, and R. M. Grueninger.—p. 17.

*Alcoholism as a nutritional problem. R. J. Williams.—p. 32.

Hypovitaminemia A. Effect of vitamin A administration on plasma vitamin A concentration, conjunctival changes, dark adaptation and toad skin. J. E. Kirk and M. Chieffi.—p. 37.

*The effects of amino acid deficiencies in man. A. A. Albanese.—p. 44.

*The therapeutic uses of low fat, low cholesterol diets. I. Treatment of essential familial xanthomatosis. F. Urbach, E. A. Hildreth, and M. T. Wackerman.—p. 52.

Overnutrition and obesity. H. H. Mitchell.—p. 66.

Diet and Hypertension. The value of diet in hypertension has not been as widely accepted, either as to its necessity or its form, as has dietary treatment for other diseases. In the absence of conclusive evidence, it is necessary to deal more or less empirically with clinical experiments concerning the role of sodium in hypertensive human beings. Observations of the effects of both the low-sodium (about 0.2 gm. daily) and the rice diet emphasize that sodium must be drastically restricted to obtain results and that the effect of the deprivation may not be apparent for several weeks. Extra-dietary sources of sodium, such as tooth paste, city water, and so on, must be considered in estimating the amount of sodium consumed. Problems arise in prescribing the diet because of its unpalatability, and at present, there is no satisfactory salt substitute. The rice diet allows almost no scope for the patient's imagination or ignorance: it has demonstrated that survival is possible on a diet of low-protein, low-fat content, and it has shown the harmlessness of rapid weight loss under conditions of limited activity. Unfortunately, in cases of malignant hypertension, the disease often progresses so rapidly that there is no time to benefit from diet therapy, and other measures, alone or in combination with the diet, must be taken more promptly.

Vitamin B_{12} Supplementation. Group studies were designed to determine how effective vitamin B_{12} supplementation for overcoming simple growth failure would be in the natural home environment. On the nutritional side, simple growth failure involves both substance as well as fuel debts which must be paid before recovery is achieved. Results of B_{12} supplementation are shown in tables. Twenty children in one group received B_{12} supplements for 16 weeks; in another group, 16 children were given the same supplement for 6 weeks. Of the total of 36 children, 23 responded definitely to the treatment by significant growth gain. No differences were found between crystalline and concentrated forms of the vitamin. From the standpoint of a nutrition program, the study reveals general benefits well beyond the point of individual recovery responses.

Alcoholism and Nutrition. The theory is presented that nutritional deficiency may be a basic cause of uncontrolled liquor consumption as well as one of its results. Findings in biochemical-genetic relationships indicate that each individual possesses by inheritance distinctive metabolic machinery, making "individuation" in nutrition inescapable. Experiments with animals have shown the relationship between individuality in nutritional needs and alcoholism. On a stock diet some rats experienced no nutritional deficiency and had no tendency to drink alcohol, while other rats on the same diet drank heavily. On a marginal diet, all the animals developed deficiencies and had a substantial appetite for alcohol, while on an abundant diet none of the rats developed deficiencies and none drank appreciable amounts of alcohol. Why deficiencies cause an appetite for alcohol is not understood. In the human situation, psychologic and sociologic factors complicate the problem, but it is hoped that study will establish whether nutritional supplements will, in some cases, abolish alcoholic craving.

Effects of Amino Acid Deficiencies. Clinical and laboratory manifestations of specific amino acid deficiencies were studied because a dietary deficiency of a single amino acid, with the resulting imbalance, may produce a greater clinical effect than a complete low-protein regimen. In human studies, thirty experiments on seven amino acid deficiencies were conducted with young adults. The conclusion was that tryptophan, lysine, methionine, isoleucine, leucine, phenylalanine, valine, and threonine are dietary essentials for the maintenance of nitrogen equilibrium, whereas histidine and arginine are not. Diets of persons whose protein stores have been depleted should be high in animal proteins since these contain the essential amino acids often lacking in vegetable proteins. A ready source of good quality proteins is milk. These studies, and others conducted with infants, suggest that certain amino acid deficiencies in man can be identified by changes in amino acid levels in the urine or blood.

Therapeutic Uses of Low-Fat, Low-Cholesterol Diets. Placed on daily diets adjusted to contain approximately 20 gm. total fat and 100 mg. cholesterol, nine patients with proved familial xanthomatosis showed a significant fall in serum cholesterol levels. Those with tendon lesions experienced a reduction in the size of the lesions after two or three months. All patients with angina pectoris improved clinically. It appears that adherence to a low-fat, low-cholesterol diet can produce amelioration o atherosclerotic symptoms.

JOURNAL OF THE INDIAN MEDICAL ASSOCIATION

Vol. 21, September, 1952

*Role of vitamin B_6 in amino acid metabolism P. N. Agarwal.—p. 517.

*Nutrition and dietetics. Editorial.—p. 525.

Vol. 22, October, 1952

*Garlic juice in the treatment of ulcers. S. P Gupta, B. N. Sinha, R. K. Chowdhary, R. C. Pande, A. Charan, Y. P. Naithani, B. S. Darbari and B. Agarwal.—p. 14.

Amino Acid Metabolism. The importance of vitamin B_6 compounds in protein metabolism of living tissues is considered. Among those discussed are pyridoxine, pyridoxal, pyridoxamine, desoxypyridoxine, and methoxypyridoxine. In some cases the free compounds are functional, while in others the phosphorylated derivatives are active. Vitamin B_6 may be regarded as occupying a position in protein metabolism analogous to that of thiamine in carbohydrate metabolism.

Dietetics in India. Considering the wide variety of food habits in the vast country of India and the high cost and non-availability of some of the basic foodstuffs, it is obviously difficult to promote a satisfactory nutrition program there. Dietitians are badly needed. There is little arrangement for instructing medical students in dietetics; therefore, young doctors are often unable to prescribe the right types of diets. As an initial step in meeting the problem, a nutrition officer has been appointed at the All-India Institute of Hygiene and Public Health in connection with the Medical College, Calcutta.

Healing Effects of Garlic Juice. The effect of aseptically collected, fresh garlic juice on wounds and ulcers was studied as a result of reports that its application to infected wounds diminished pus discharge and relieved pain. The bacteriostatic action of garlic juice was found to be far greater for Staphylococci and coliform organisms than that of the common dressing solution, eusol. When applied in varying strengths to

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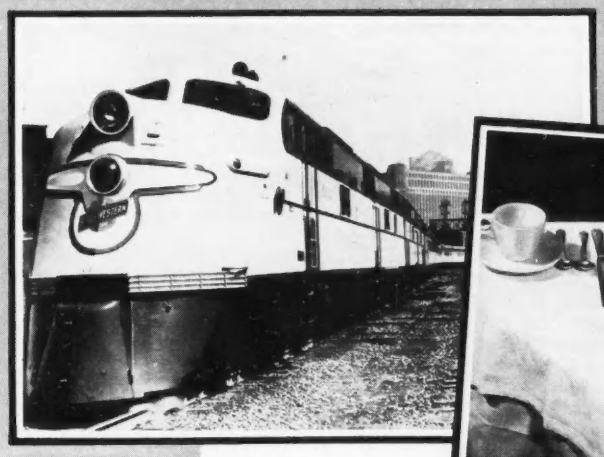

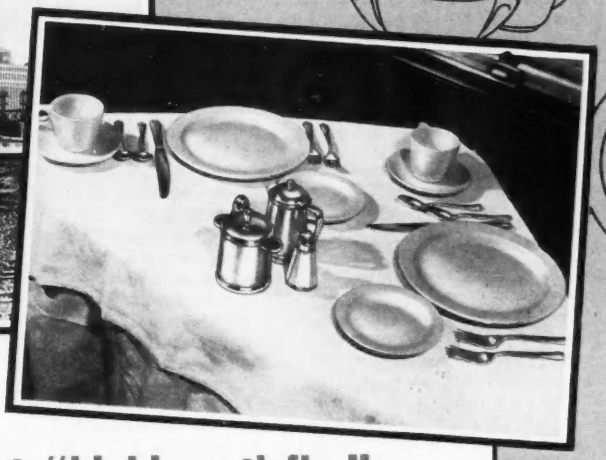

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ulcers, the juice was definitely shown to have clearing and healing effects. Ulcers with maggots were found to be resistant to the treatment as were cases with sinuses and those associated with tubercular or pyogenic bone diseases.

THE JOURNAL OF NUTRITION

Vol. 48, October, 1952

*Dermatosis in weanling rats fed lactose diets. I. The influence of relative humidity and diet. M. Schreiber, R. A. Collins, H. Niño-Herrera, and C. A. Elvehjem.—p. 125.

*The effect of fat level of the diet on general nutrition. IX. The relationship of radiation injury in the rat to the fat content of the diet. A. L. S. Cheng, G. D. Kryder, L. Bergquist, and H. J. Deuel, Jr.—p. 161.

*Intravenous injection of fat-soluble vitamins and transfer to milk of injected vitamin A. A. E. Sobel, A. Rosenberg, and E. Engel.—p. 183.

*The effect of dietary fat and caloric restriction on protein utilization. H. L. Rosenthal.—p. 243.

*Basal heat production and elimination of thirteen normal women at temperatures from 22°C. to 35°C. E. F. DuBois, F. G. Ebaugh, Jr., and J. D. Hardy.—p. 257.

Dermatosis with Lactose Diets. The effect of diet upon dermatosis in rats was studied at a relative humidity of approximately 30 per cent and at a temperature of 26°C. under controlled conditions. On diets containing cow's milk, goat's milk, corn oil-lactose, and coconut oil-lactose, the animals showed a moderate degree of scaly dermatosis. When butterfat-lactose or lard-lactose diets were fed, only slight dermatosis was observed. The substitution of an equimolar mixture of galactose and glucose for lactose in the corn-oil diet prevented the occurrence of dermatosis and accelerated the growth of the rats. Sucrose diets containing butterfat or corn oil did not precipitate any dermatosis nor did a more conventional low-fat diet. The supplementation of ½ to 1 gm. fresh beef liver per rat per day was found to provide excellent protection from the scaly dermatosis and to stimulate growth.

Fat Protection in Radiation Injury. Investigations have shown an increase in susceptibility to x-ray injury when deficient diets are administered. The experiments described were carried out to investigate the effect of dietary fat on injury due to exposure to x-irradiation. Although there seemed to be little effect of a fat diet on injury due to a single exposure of x-irradiation at a high level, there is no question but that it served to protect rats from repeated sublethal doses of x-irradiation. The protective effect of fat was approximately as satisfactory at the 2 per cent level as when the substance comprised 15 or 30 per cent of the diet. The factor in fat responsible for the protective action appears to be the essential fatty acids.

Mammary Transfer of Vitamin A. To investigate the transfer of vitamin A to milk, cows were given vitamin A dispersions injected intravenously as compared with oral doses of aqueous and oily vitamin A. Blood levels of the vitamin were maximal following intravenous injection. When higher blood levels were obtained, milk levels also rose. The maximum transfer also took place much earlier with intravenous injection than with oral administration. Since the lack of sufficient fat-soluble vitamins, especially of vitamin A, is a problem not only in human nutrition, but also in animal husbandry, intravenous administration may be most practical for insuring that the large ruminants obtain complete dosage of the vitamin under conditions transferring it to the milk and organs where its need is greatest.

Protein Utilization. Tables show the results of experiments on dogs for determining the role of dietary fat with concomitant caloric restriction on the utilization of dietary protein. Table 1 indicates that the nitrogen balance index of casein is not altered from normal by varying the fat content of the diet from 5 to 85 per cent of the total calories when the caloric intake is 100 or 50 per cent of the calories required to maintain body weight. However, when caloric intake was reduced to 25 per cent of the maintenance requirement, an increase of dietary fat resulted in decreased nitrogen balance indices below normal values. The effect of dietary fat on the nitrogen balance in dogs fed large amounts of casein and restricted caloric intakes is illustrated in another table which shows that the reduction of dietary calories results in a greater excretion of nitrogen but that the incorporation of large amounts of fat in the diet has no further effect.

Heat Reduction and Elimination. In studies of heat loss and the mechanism of temperature regulation, thirteen normal young women were measured in the Sage respiration calorimeter at environmental temperatures between 22° and 35°C. for: heat production; respiration quotient; rectal temperature; average surface temperature; total heat loss; conductance; and the percentages of heat lost by radiation, convection, and vaporization. In comparison with similar tests on men, it was found that the average basal metabolism of the women was so much lower per unit of surface that women have an advantage over men in the warm zones and do not need to perspire as much. In the cold some, but not all, women lose heat less rapidly than men. Metabolism remains constant or rises at cold temperatures, although the peripheral tissues lose great amounts of heat. Therefore, there must be an increase in the metabolism of the core of the body to compensate for the decrease in the periphery. In this sense, there is a chemical regulation in men and women.

THE JOURNAL OF PEDIATRICS

Vol. 41, November, 1952

*An evaluation of the curd-forming properties of milk mixtures used in infant and child feeding. B. Spur and I. J. Wolman.—p. 541.

Curd-Forming Properties of Milk Mixture. The curd-forming properties of milk and milk mixtures used in infant feedings have been studied by testing procedures which simulate intragastric conditions. The results confirm that heat treatment, dilution with water, acidification, and homogenization, if adequately employed, are effective in eliminating the tendency of unmodified cow's milk to form large firm coagula in the stomach of the infant and child. Fever temperatures aggravate the tendency to "hard curd formation." Apple sirup reduces this tendency some, banana more so, whereas cornstarch derivatives exert no influence.

THE LANCET

Vol. 2, November 8, 1952

*Management of cœliac disease. W. Sheldon and D. Lawson.—p. 902.

Celiac Disease. The present position concerning dietetic management is one in which gluten is completely excluded from the diet, yet normal in all other respects. The initial diet consists of skim milk, glucose, banana purée, and a skim milk powder with added protein. Additions begin as soon as the child evidences interest and pleasure in feeding. The first additions consist of minced chicken, egg custard, and biscuits made from soya flour and spread with butter and honey. These are followed by sieved, starch-free vegetables (cabbage, cauliflower, beets, tomato), sieved fruits, and cheese. Only one new food is tried on any one day. Skim milk continues until the stools are of good consistency. The final step is to add starch, but any gluten-containing foods (containing rye or wheat or their flours) are still avoided. The build-up of the diet for children with celiac disease is a continuous process carried out under conditions of close watchfulness. Gluten, when added to the diet in the later stage, does not cause a return of symptoms, but the study showed that the children did not have a normal growth curve.

NEW YORK STATE JOURNAL OF MEDICINE

Vol. 52, November 15, 1952

*Diabetes complicating pregnancy. W. P. Given.—p. 2794.

Diabetes Complicating Pregnancy. The author discusses the advances made in treating diabetic pregnant women. Before the time when insulin was discovered, there were few pregnancies and almost no well babies. For the first twenty or twenty-five years after the advent of insulin therapy, it was possible to care for the mothers, but 30 to 50 per cent of the babies died. In the last ten years, more attention has been given to the diabetic pregnant woman, with the result that fewer complications of pregnancy arise and infant mortality is decreased. The author stresses, however, that the diabetic pregnant woman must not be treated as in a normal pregnancy.

NEW ZEALAND MEDICAL JOURNAL

Vol. 51, June, 1952

*Nutritional heart failure. G. L. Brinkman.—p. 173.

*Salmonella types in New Zealand. S. W. Josland.—p. 180.

Thiamine and Nutritional Heart Failure. Forms of nutritional heart failure, other than beriberi heart which is well recognized, are discussed. Endocardial fibrosis was first attributed to a defi-

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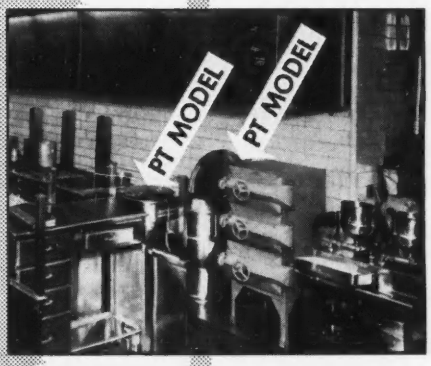

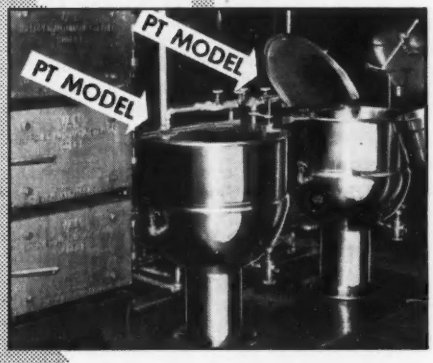

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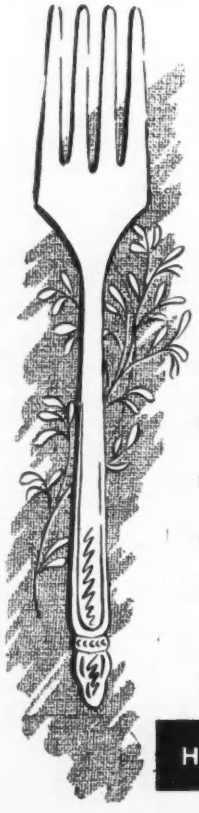

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ciency of thiamine in 1940. In the last fifteen years a group of cardiac cases appearing to form an entity have been described, all having a history of nutritional deficiency extending over months or years. They occur most commonly in chronic alcoholics, diet faddists, or drug addicts. Most sufferers do not benefit from thiamine therapy because of extensive structural changes in the heart which are irreversible. In one type of endocardial fibrosis, myocardial changes may be found, while in a second type there are no myocardial changes but eosinophilia is always present. This second type occurs in well nourished persons whose diet contains a sufficiency of thiamine. However, although no cause has yet been named, a nutritional factor seems to be involved. A third type which occurs in conjunction with a diet deficient in every respect does not respond to thiamine therapy, but shows rapid improvement with a good varied diet. High incidence of alcoholism and the accompanying sub-minimal deficiency of thiamine seems to account for congestive heart failure among the young Indian population of Suva. The author believes that once the process of endocardial fibrosis has started, it is self-perpetuating and continues its course despite the administration of normal diet or thiamine therapy.

Salmonella Types. Five hundred and seventy-six Salmonella cultures comprising 45 of human origin and 531 of animal origin have been examined and identified in New Zealand. The occurrence and species of 12 types are described, all associated with contamination spreading from animal or human sources.

NUTRITION REVIEWS

Vol. 10, October, 1952

*Nutritional considerations in designing combat rations. H. Spector.—p. 289.
*Heat stress and food intake by infants.—p. 293.
*B vitamin excretion in man as influenced by streptomycin.—p. 294.
Nutrient intake and serum levels.—p. 295.
*Hereditary obesity of mice.—p. 303.
*Relation of cereals and sugars to experimental dental caries.—p. 304.

Combat Rations. Food and rations for the armed forces must be evaluated in terms of the following military needs: nutritional adequacy, acceptability, stability, and utility. To determine nutritional adequacy, the total nutritive value of the ration items is appraised. This cannot be done with conventional tables of food composition, however, but must be the result of laboratory analysis coupled with a knowledge of special military nutritional requirements, such as the possible need for additional pyridoxine. Understanding the nature and extent of physiologic and psychologic stress and the resulting changes in metabolism and food requirements is basic to designing optimal rations. The incorporation of a suitable quantity of protein into the all-purpose, high-carbohydrate survival ration has been considered, but the stumbling block to this is the classic physiologic concept that protein fed at low caloric levels will be burned for energy and require additional

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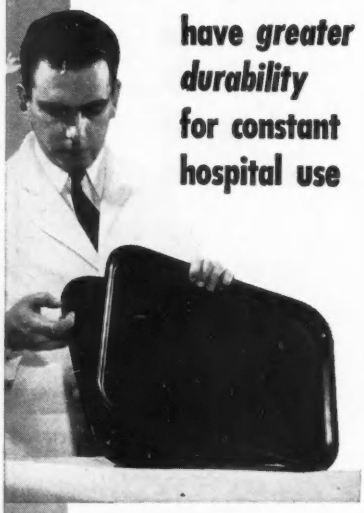

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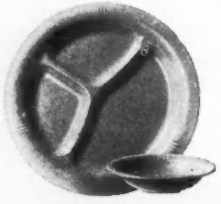

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water for urinary excretion. In considering the effects of storage and processing, it must be remembered that the biologic values of proteins and vitamins may become considerably altered.

Infant Feeding and Heat Stress. Although it is recognized that high temperatures suppress food intake in adults, little study has been made until recently of this phenomenon in human infants. Observations in infants during alternate intervals of temperature at 81° and at 91°F., with constant humidity, showed that at the higher temperature caloric consumption fell while water intake increased. These alterations appeared to be less marked in early infancy than in more mature stages of growth, but so far, it is not clear whether the differences in reaction represent learned behavior or the maturing of homeostatic mechanisms. The use of more dilute feeding mixtures during hot weather, however, seems to be practical in feeding infants, the obvious alternative being to offer water prior to caloric mixtures.

B-Vitamins and Streptomycin. In a study of the effect of orally administered streptomycin on the urinary excretion of B-vitamins in man, it was assumed that the antibiotic may cause changes which would be attributable to a modification of intestinal bacteria. The six subjects observed were placed on different but equally adequate diets. Three of the subjects received four 1-gm. doses daily of streptomycin and the others received 6 gm. daily in 1-gm. doses. The excretion of thiamine and riboflavin was not significantly influenced by the streptomycin administration. Folacin excretion was not decreased in any of the subjects, and in two it was increased. The latter effect was considered to explain the growth-stimulating action of antibiotics which has been reported in experimental animals. The excretion of niacin metabolites following the feeding of tryptophan was not affected by the oral feeding of streptomycin. This was interpreted to mean that the conversion of tryptophan to niacin takes place in the body other than in the intestinal tract. However, the use of antibiotics may disturb the normal intestinal flora and eliminate this source of B-vitamins in the host resulting in nutritional deficiencies in man.

Hereditary Obesity. A strain of hereditarily obese mice was developed in which diabetes mellitus also occurred. Observations showed that the obese mice displayed a lower basal oxygen consumption than their nonobese siblings and a slightly increased caloric intake, explaining their obesity in terms of over-all balance. Possible defects in the intermediary metabolism of fat are under investigation. Histologic studies revealed that hyperplasia of the islands of Langerhans is a constant finding in the obese strain, but no definite histologic abnormality was noted in other endocrine organs. The relation of obesity to the disturbed carbohydrate metabolism is obscure.

Cereals and Sugars in Relation to Dental Caries. A basal ration, both in liquid and solid form, of oatmeal, dried whole milk, and sugar was fed to cotton rats for the purpose of investigating the relation of cereals and sugars to the maintenance of fully developed teeth. When the diet was administered as a fluid, the incidence and extent of tooth decay was drastically reduced. The caries-producing properties of natural and refined sugars were also compared, with the result that no difference could be observed between them. In a third experiment, whole milk powder was replaced by casein and dextrin, resulting in a striking increase in the average number and extent of carious lesions. There was also a trend toward rickets indicating a possible correlation between the low mineral content of the diet and the incidence of dental caries. Modifications of the whole milk and oatmeal contents of the diet did not appear to affect the incidence and extent of tooth decay. The relation of whole grain and processed cereals to tooth decay was studied with oatmeal and with whole corn or corn flakes showing that the whole grains were about 50 per cent less cariogenic than the processed product. Changes of the ratio of alkaline and acid elements in the ash content of the diet produced no alteration in the incidence of lesions. The conclusion is that there are other factors besides the sugar content of the ration which contribute to the caries production.

PHYSIOLOGICAL REVIEWS

Vol. 32, October, 1952

*Biochemical evidence of nutritional status. O. H. Lowry.—p. 431.

Biochemical Evidence of Nutritional Status. The assessment of nutritional status is an integral part of the science of nutrition and a necessary prelude to any rational program of dietary improvement. The first nutritional evaluations were based on clinical findings and response to diet therapy. This has been satisfactory for determination of gross deficiencies, but now it is important to find the difference between optimal and something less than optimal status. Biochemistry makes it possible to establish optimal intake level for a nutrient. It should also make it possible to establish corresponding parameters for tissue, blood, or urine which could then be used in nutritional assessment. The assessment of nutritional status must be individualized to meet each problem. With a given nutrient, a single type of measurement may be appropriate for one purpose but not another. This paper is limited to the discussion of ascorbic acid, riboflavin, and thiamine.

PSYCHOSOMATIC MEDICINE

Vol. 14, September–October, 1952

*Psychological aspects of reducing. H. Bruch.—p. 337.

*Effects of ACTH and cortisone on mood and mentation. T. Lidz, J. D. Cater, B. I. Lewis, and C. Surratt.—p. 363.

Reducing. Obesity is the cause of continuous ridicule in our society, and the obese person frequently makes many unsuccessful attempts to reduce. There are two types of overweight: one is a result of normal variation in body build and the other is an expression of emotional maladjustment. To the adequately adjusted

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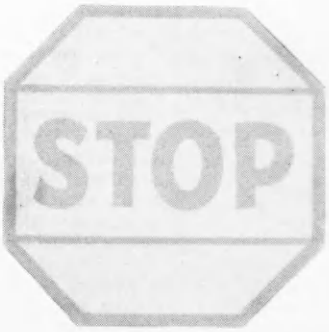

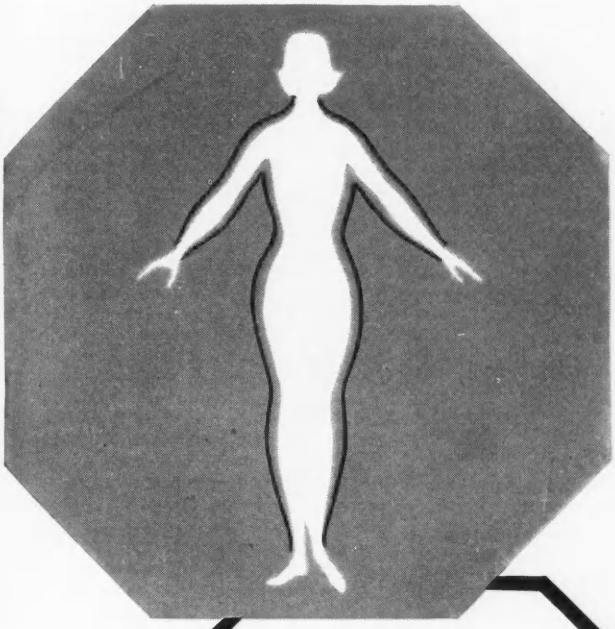

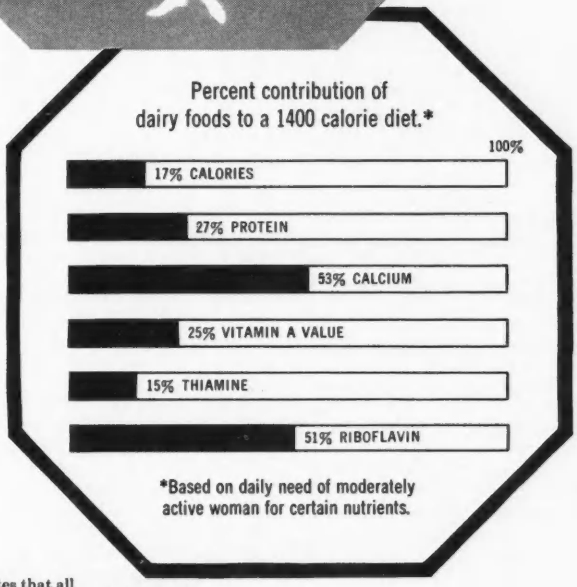

weight reduction **can be achieved, and normal weight maintained, on a palatable diet of ordinary foods.**

In recent studies of weight reduction men and women achieved satisfactory weight losses, without reporting hunger or loss of pep, on diets containing approximately equal weights of protein, fat, and carbohydrate.[1,2] In diets adjusted to supply 1400 calories to women, 1800 calories to men, more than half the energy came from fat—an important factor in the hunger-satisfying quality of the diet, because fat slows digestion and absorption of nutrients. Nitrogen and calcium retention, as measured by balance studies, was satisfactory.[3]

High proportion of nutrients in relation to calories make dairy foods an essential part of reducing diets. In the diet referred to above, dairy foods supplied less than one-fifth of the 1400 calories, but more than one-half of the recommended amounts of calcium and riboflavin and one-fourth of the protein and vitamin A for an adult woman. Significant amounts of other needed nutrients were also supplied by dairy foods.

Intensive studies of low-calorie diets show that milk, because of its unique nutrient contribution, does more for the reducer than any other single commonly used food.

[1]Cederquist, D. C., Brewer, W. D., Beegle, R. M., Wagoner, A. N., Dunsing, D., and Ohlson, M. A. Weight reduction on low-fat and low-carbohydrate diets. I. Clinical results and energy metabolism. J. Am. Diet. Assn. *28*:113 (Feb.) 1952.

[2]Young, C. M. Weight reduction using a moderate-fat diet. I. Clinical responses and energy metabolism. J. Am. Diet. Assn. *28*:410 (May) 1952.

[3]Brewer, W. D., Cederquist, D. C., Williams, B., Beegle, R. M., Dunsing, D., Kelley, A. L., and Ohlson, M. A. Weight reduction on low-fat and low-carbohydrate diets. II. Utilization of nitrogen and calcium. J. Am. Diet. Assn. *28*:213 (March) 1952.

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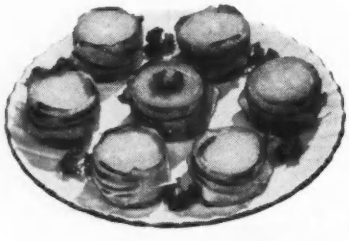

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overweight person, reducing is a rational task, with the aim being to lose weight. For the emotionally disturbed person reducing is not merely an attempt to lose weight, but is also a means of fulfilling exaggerated daydreams of success and achievement. When weight is lost and daydreams are not realized, the development of serious mental disturbance and even psychosis may occur. Any prescribed dietary restrictions for such a person should be preceded by a corrective reappraisal of aspiration level.

Effects of ACTH and Cortisone. Fifteen patients (ten asthmatics) were observed and psychologically tested after a twenty-three-course treatment of cortisone and ACTH. It was noted that appearance of euphoria seemed to be correlated with marked physical improvement. The authors conclude that, in the varying dosages given, ACTH and cortisone would cause no transient degradation of mental functioning. The possibility still exists that prolonged and heavy dosage might produce changes that affect cerebration.

PUBLIC HEALTH REPORTS

Vol. 67, November, 1952

*Public health and clinical laboratories in the diagnosis of enteric bacterial infections. E. J. Tiffany.—p. 1069.

*Food and water borne disease outbreaks—1951 summary. C. C. Dauer.—p. 1089.

Diagnosing Bacterial Infections. Tables summarize procedures for Salmonella and Shigella identification. It is important as a public health measure to shorten the diagnostic time because the epidemiology of a case must be understood if the spread is to be limited.

Food Borne Disease in 1951. Fewer disease outbreaks in which food or water was the transmitting agent were reported in 1951 than in 1950, but the number of persons affected was approximately the same. The reduction was due almost entirely to a decrease in the number of outbreaks in which foods other than milk and milk products were the responsible agents. Faulty methods of handling and poor hygiene of food handlers were found frequently in investigations following outbreaks of food-borne disease. Inadequate refrigeration was responsible for one-third of the epidemics, and the storing of meats in a warming oven or steam table for several hours was another practice causing bacterial growth. Finding of Salmonella infection in fowl or eggs suggested that the fowl were naturally infected. Bacterial contamination of the water supply was reported in seven instances. Types of infection discussed are staphylococcal food poisoning, typhoid, salmonellosis, streptococcal disease, shigellosis, and diarrhea of the newborn.

SCIENCE

Vol. 116, November 7, 1952

*Ascorbic acid and physiological breakdown in the fruits of the pineapple. (*Ananas comosus* L. Merr.) E. V. Miller and A. S. Heilman.—p. 505.

*Effect of renin on diuresis in rats. H. Croxatto, L. Barnafi, and J. Passi.—p. 507.

Low Temperatures and Tropical Fruits. It appears that destruction of ascorbic acid constitutes the first phase of low-temperature injury to tropical fruits, although this is not the only effect. The conclusion was reached as a result of an analysis of pineapples which had been stored at low temperature but which had not shown visible evidence of physiologic breakdown. The fruits were harvested in the "mature green" stage, shipped, and divided into two comparable lots. One lot was held at room temperature, the other was stored at 6°C. for a week, then held at room temperature for two days. Upon analysis of the expressed and filtered juice, it was found that the two lots did not differ significantly in total soluble solids, total acids and bromelin activity, but that there was a highly significant difference in ascorbic acid.

Effect of Renin on Diuresis. In normally hydrated rats drinking tap water, the intraperitoneal administration of renin considerably increased urinary excretion, whereas subcutaneous administration modified it slightly or not at all. The stimulating effect on diuresis was observed after each injection, but decreased with repeated injections. In animals drinking 1 per cent sodium chloride solution, the diuretic action of renin was considerably increased, even when administered subcutaneously. The increase in diuresis produced by renin was independent of the changes in blood pressure. The greater diuretic effect of renin on the rats drinking the sodium chloride solution confirms the probable relation of this effect with sodium excretion.

SOUTHERN MEDICAL JOURNAL

Vol. 45, November, 1952

*The clinical use of ACTH and cortisone in the treatment of allergic diseases. S. F. Hampton.—p. 1061.

ACTH and Cortisone in Allergy. In this study of ninety cases of asthma, urticaria and/or angioneurotic edema, and the allergic type of dermatitis, the effectiveness of intravenous or intravenous plus intramuscular injections of ACTH over the conventional intermuscular method of administration was demonstrated. No alarming changes in blood sodium and potassium occurred. However, it is recommended that a dosage of 3 gm. potassium chloride or acetate daily be prescribed and that sodium content of the diet be reduced to 1 or 2 gm. daily. It was noted that ACTH and cortisone may delay wound healing, and perforation or hemorrhage of peptic ulcers may occur under such therapy. Antibiotics should be used in conjunction with ACTH or cortisone therapy when acute infection is present.

THE TOHOKU JOURNAL OF EXPERIMENTAL MEDICINE

Vol. 56, August 25, 1952

*Macrocytic anemia and its relation to liver biopsy of nutritional dystrophy in children. Part I. (Studies on the nutrition of children in Hirosaki area. 12th report.) S. Wada and Y. Sato.—p. 259.

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Macrocytic Anemia. Cloudy swelling, fatty infiltration, and portal fibrosis are the three groups of pathologic findings classified as a result of liver biopsies performed on children, with or without nutritional dystrophy. An effort was made to relate the findings to macrocytic anemias, of which two types were recognized. Broadly, Type I is anemia with an increased volume index, while Type II is that with an increased mean corpuscular diameter in spite of an unincreased volume index. Type I was found more frequently in cases of cloudy swellings of the liver than in those with liver lesions. In Type II, portal fibrosis associated with diffuse fibrosis of the liver predominated. The fibrosis was considered a consequence of prolonged fatty infiltration of the liver, and accordingly, the result of chronic deficiency in protein or methionine. Deficiency of riboflavin was associated in frequency and intensity in the cases with portal and diffuse fibrosis.

THE UNITED STATES ARMED FORCES MEDICAL JOURNAL

Vol. 3, October, 1952

*Navy food service standards and training. R. M. Cain.—p. 1545.

Navy Studies Sanitation. A new manual for standard methods in scullery and galley sanitation with respect to training dishwashing-machine operators and supervisory personnel is being compiled for the Navy. Research on machine design, formulation of better dishwashing detergents, and maintenance of proper detergent concentrations has been done. Experience indicates that properly trained personnel can obtain acceptable sanitary results with mediocre equipment, but acceptable results cannot be obtained, even with good equipment, if it is operated by improperly trained personnel under inadequate supervision.

AMERICAN RESTAURANT MAGAZINE

Vol. 36, December, 1952

Cooking with wine is simple. L. D. Freeman.—p. 44.

*More profits from produce.—p. 46.

*Restaurant problems (answers to questions).—p. 68.

*Simplified portion control for 58 best sellers.—p. 76.

Profits from Produce. Pointers on handling and buying many kinds of produce—from avocados to watermelons—are given concisely in this article.

Cost of a Cup of Coffee. A cost summary based on materials, labor, washing supplies, and breakage shows the cost of a cup of coffee, based on an average formula and prices, to be nearly 7 cents a cup.

Portion Control. Meat balls, meat loaf, Salisbury steak, hamburger steak, and corned beef hash are the "best sellers" analyzed for portion control figures in this, the seventh in a series of articles. The author gives helpful advice on making hamburgers appetizing, warning that if the meat is of too low a grade, it tastes like "chopped newspaper."

COLLEGE AND UNIVERSITY BUSINESS

Vol. 13, December, 1952

*Tools for control of food costs. A. B. Atkinson.—p. 48.

Food Cost Control Tools. Accompanying this article are six forms which are used in the author's food service operation as tools for cost control: an inventory order sheet, a recipe worksheet, a recipe card, two types of market order forms, and a yield and cost chart. The use of these forms is briefly described.

FOOD ENGINEERING

Vol. 24, November, 1952

*Revolutionizes fat rendering. R. E. Morse, W. R. Dayen, and K. M. Christensen.—p. 72.

Engineering quality pectins. G. H. Joseph and C. R. Havighorst.—p. 87.

*Progress in canned fresh milk.—p. 90.

*Keeping orange juice fresh. C. E. Wright.—p. 93.

*Unshelled peanuts now salted by new process. S. Siewart and J. G. Woodroof.—p. 110.

*Selecting and processing apples for top-quality pies. Part II—Preparing them for the pastries. L. Bisno.—p. 112.

*Milk in bottles ready for baby.—p. 141.

Vol. 24, December, 1952

*Quality deep fat-fried foods. R. W. Bates.—p. 82.

*Better color, better flavor in processed mushrooms. J. C. Bauernfeind, E. G. Smith, and G. F. Siemers.—p. 89.

*Soy-flour bread wins its place. C. W. Ofelt, A. K. Smith, C. D. Evans, and H. A. Moser.—p. 145.

Fat Rendering. A new low-cost "flash" process for rendering fat has been perfected which gives a higher yield and a better product.

Canned Fresh Milk. A new and large processor of aseptically canned fresh whole milk has started operations in Wisconsin. Most of this plant's output will be aimed at consumption in 6-oz. cans for "spot" drinking at metropolitan vending machines. Formerly, canned fresh milk was confined to gallon units for remote, milk-scarce areas. One shipment has gone to a New York City vending machine company, but the bulk of the already-processed product is going to Cuba for use in the school lunch program. The milk collecting system is described, as are the sterilizing and canning processes.

Keeping Orange Juice Fresh. Single-strength fresh orange juice is now being shipped from De Land, Florida, to Boston—1450 miles—in unrefrigerated tank trucks, without deterioration in quality or loss of flavor. The juice is exposed, immediately after extraction, to irradiation with selected ultra-violet rays. It is then cooled quickly to 33°F. and kept at a low temperature during transportation in insulated trucks. A nitrogen blanket to remove excess oxygen is used before transportation. The irradiated juice can be kept at room temperature up to 24 hr. without noticeable bacterial development, and at 42°F., it has been kept in good condition for seven weeks.

Peanuts Salted in the Shell. Peanuts salted in the shell are soaked in a wetting agent, rinsed, submerged in brine, subjected to vacuum, re-rinsed, and centrifuged or spread on absorbent cloth or paper. They are then roasted immedi-

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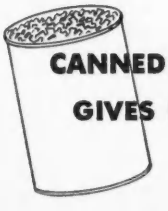

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ately or stored before roasting for not more than one year. A consumer preference test showed that 84 per cent of the people interviewed preferred the salted peanuts over the unsalted.

Top-Quality Pie Apples. Recommendations are given for handling apples for pies. Prevention of spoilage and discoloration is also discussed. Apple pies, from a production standpoint, are of two types: (a) those in which the slices are baked in the pie and (b) those where slices are cooked before baking the pie. Various methods for preparing these pies are outlined.

Bottled Milk for Infants. The "Junior Jug," developed by a New Jersey dairy, is an 8-oz. bottle of homogenized, vitamin D-fortified milk for infants which requires no home sterilization. In the dairy, the bottles are washed and sterilized in a soaker-washer, filled, and capped on the regular unit. The milk is capped with an aluminum closure and delivered to homes where it may be stored in the refrigerator until used. Any standard screw-type nipple cap fits the bottles, which are also used as regular ½-pt. containers for other products filled by the dairy. Although the Junior Jug has not proved particularly profitable in itself, it has acquainted homemakers with the dairy's products and service—the main objective of its introduction.

Quality Fried Foods. Shortenings, when put to protracted use as heat-transfer media in deep-fat frying, finally change their composition and accumulate impurities to an extent that necessitates replacement. A half dozen changes in fats or shortenings which occur during deep-fat frying must be controlled if quality foods are to result: (a) hydrolysis; (b) polymerization; (c) stability; (d) discoloration; (e) foreign material; and (f) flavor. Ways of controlling each are covered in detail. The authors recommend avoiding heating of fats with direct flame, and emphasize that in no case should copper or any alloy containing it come in contact with the shortening.

Processed Mushrooms. Ascorbic acid, added in tablet form, retards the discoloration of processed mushrooms. The preparation of the experimental packs is described, and tables are presented on color and flavor improvement by ascorbic acid, both in glass-packed and tin-packed mushrooms. Another table gives figures on the improvement of mushroom soup by adding ascorbic acid, and still another shows the color changes of processed mushrooms exposed to the air.

Soy-Flour Bread. Taste-panel experts found no significant flavor differences between soy-flour bread and that made with nonfat dry milk solids. In one bread 5 per cent nonfat soy flour was used. This has been found to be more desirable in flavor than bread made from full-fat soy flour. The crumb was found equally soft, and the rate of firming the same, in the two breads.

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HOSPITALS

Vol. 36, December, 1952

*The board of trustees organizes a dietary survey committee. S. J. Levie.—p. 115.

Dietary Survey Committee. Trustees of the Jewish Hospital Association felt that better understanding of the problems in the dietary department of Cincinnati's Jewish Hospital was needed. Therefore, a survey committee composed of trustees, medical staff, the hospital staff's chief resident, the director of nurses, the dietary department director (author of this article), her first assistant, women's auxiliary members, and several restaurant men was appointed. The committee's aims were: (a) to study and thus understand more fully the dietary department and its organization, layout, functions, and services; (b) to analyze the problems involved in food service to patients and employees; (c) to be able to interpret better these problems to the other members of the board and to the community; (d) to recommend solutions to problems; and (e) to help in improving the dietary service and make its work better known. Some of the problems studied were: food temperature, serving time, a check of food preparation and service, personnel problems, prepreparation of the patient before meals by the nursing department, food cost in relation to variety and selection, menus, equipment, and adjunct areas of improvement. The committee, first formed in 1951, is still active. Suggestions to help the dietitian in establishing a dietary committee of the board of trustees are given.

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2. Add to 9 qts. very hot milk (heated just below the boiling point).
3. Cook over boiling water, stirring constantly until mixture thickens (about 3 minutes). Then cook 10 minutes longer, stirring frequently. Remove from heat. (In a steam-jacketed kettle, cook 8 to 10 minutes after mix thickens; stir constantly.)
4. Cool 5 minutes, stirring twice. For pies, turn into 15 baked 9-inch pie shells, allowing 3 cups hot filling for each. For puddings, pour into shallow pans and cover surface of pudding with waxed paper. (Mixture thickens as it cools.) Chill and top with whipped cream. Makes 15 pies or 10¾ quarts pudding.

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HOTEL MANAGEMENT

Vol. 62, November, 1952

*Food briefs.—p. 23.
*Food magic. B. Schimmel.—p. 52.

Food News. Lemon, lime, orange, and tangerine ice creams are being developed under a new process. . . Automatic inspection by an x-ray fluoroscope may be the future method of inspecting damaged citrus fruit. . . By using caustic soda, coffee can be less expensively cured and yet have an improved flavor and aroma.

Food Magic. Ideas for the imaginative application of basic cooking principles are given. Soups, lunch and dinner dishes, promotion of summer luncheon specials, and the stimulation of dinner appetites are discussed.

INSTITUTIONS MAGAZINE

Vol. 31, December, 1952

*Successful operating methods listed by food service group.—p. 3.
*Organization, job studies, help ease manager work load.—p. 32.
*Resumé of menu rotation. R. W. Webster.—p. 39.
*Points on portion control. W. G. Seiler.—p. 39.

Successful Food Service. Good food, cleanliness, good service, and hard work are the four requisites for a successful food service operation, it was concluded by Nebraska restaurateurs at their recent convention. Also emphasized were the importance of maintaining good public and employee relations, adequate business volume, and a satisfactory food cost basis for operation. Included in the article are excerpts from the three-day meeting concerning cost control, kitchen efficiency, volume of business, employee relations, and public relations.

Easing Manager's Work Load. Determination of a concrete goal can reduce the work load of the executive, for his work and that of his subordinates can thereby be evaluated. In large establishments, an organizational chart with job descriptions is recommended, as are statements of personnel policies. With routine activities set up and duties delegated, the executive then has time to plan for the future and such occurrences as upsets and slack periods.

Menu Rotation. A Grand Rapids, Michigan restaurant uses a fixed fourteen-day rotating menu series, with the following advantages: (a) it achieves a better menu balance; (b) it releases the chef for more executive duties; (c) it reduces the burden on vacations, time off, and sickness because menu "thought work" is done beforehand; (d) it facilitates quantity planning; (e) more routinized operation results; (f) the menu cost is cut; and (g) the office girl is released to help during others' relief periods, since she does not have menus to print daily.

Portion Control. To keep employees informed of portion sizes, giant charts are hung in the kitchen of a New Orleans restaurant. Charts are made by "blowing up" typewritten copy. This plan has proved much more effective than the former procedure of printing the portions in the chef's notebook, since information is available at a glance. Bickering between kitchen and service personnel over portion sizes has been eliminated, and the charts help new personnel.

THE MODERN HOSPITAL

Vol. 79, December, 1952

*Food service in small hospitals. 5. Nutritional and cost accounting. R. C. Lifquist and J. Hart man.—p. 118.

Nutritional and Food Cost Accounting. Food supervisors and administrators need facts for judging cost of food in relation to nutritional adequacy. These facts may be obtained from the following data: (a) meal census, (b) quantity of food used, and (c) its cost. Tables show a sample daily record of the meal census, a summary of the census for all serving units, and forms for recording quantity and cost of food used. Methods of appraising the nutritional adequacy of food used include: (a) checking the number of servings of important foods used daily; (b) comparing the quantities of food groups used with food allowances developed for the specific institution, and with quantities known to be nutritionally adequate for similar groups; and (c) figuring the adequacy of the quantities used on the basis of nutritive values for food groups. Some of the other values obtainable from such records are comparison of food use by periods, evaluation of food expenditures in relation to kind and quantities of food groups used, development of quantity allowances, and estimates of quantities of foods needed.

RESTAURANT MANAGEMENT

Vol. 71, November, 1952

*A happy ending for every meal. A. Easton.—p. 39.
*"Here lies a going restaurant." C. V. Gallaher.—p. 45.
*Modern miracles with citrus fruits. P. P. Logan.—p. 46.

Desserts. Seasonal changes, appetites, and calorie-consciousness cause varied dessert preferences. Restaurateurs should give special consideration to reducers who often skip dessert and feature items low in caloric content to build business. Two illustrated recipes are given, and a list of suggestions is included, covering: pies, cakes and cake desserts, heavy puddings, light puddings, Bavarian creams and whips, cooked fruit desserts, fresh fruit desserts, cheese-and-crackers, and ice cream desserts.

Must Restaurants Die with Owners? Many restaurants, even highly successful ones, collapse after the owner's death, because goodwill value shrinks rapidly and heirs usually cannot command the same amount of business. Selling stock to worthy employees, offering partnership interests to employees, and introducing interested sons and grandsons to the business are suggested as possibilities for saving the concern, because widows who have not been active in the business are seldom able to continue its management. Less desirable solutions, if the foregoing fail, are: quick liquidation; outside income for the owner; insurance; and investments.

Citrus Fruits. Citrus fruits were unknown to the Western Hemisphere until the time of Columbus, although they were a part of the ancient Oriental diet. The sweet orange only ceased to be a Christmas specialty after World War I. Today the production of citrus is the largest single factor in U. S. fruit business, approximately equalling that of all the other major fruits. Varieties of oranges are described, and methods for judging and grading oranges are discussed. This article also deals with: what to look for in grapefruit; the main types of lemons; other citrus fruits such as limes, tangerines, and tangelos (kumquats do not belong to the citrus family); the growth of processed citrus products; and frozen concentrates.

Value of Natural Foods

Speaking before the Nutrition Foundation recently, Dr. Conrad A. Elvehjem, Department of Biochemistry, University of Wisconsin, said: "Since we now know that most of the vitamins function by supplying the prosthetic group or the working end of an enzyme, it is not surprising to find some relation between amino acids needed for building protein and a vitamin.

"Recently it has been found that vitamin B_{12} protects the young rat on a diet low in choline and methionine against a fatty liver and also against kidney damage. Work in our laboratory, using a low-protein diet of 9 per cent casein has shown that in the absence of choline, B_{12} has little, if any protective action on the production of fatty livers. This undoubtedly means that with no choline and a low supply of methionine, vitamin B_{12} is unable to overcome any of the deficiency. When small limiting levels of choline and a little higher levels of methionine are used, the vitamin B_{12} does have some sparing effect.

"We have recently found that even in the presence of adequate methionine, choline, and vitamin B_{12}, the fat content of livers is not normal when a low-protein diet is fed. Certain other amino acids are needed to bring the fat content of the liver to a normal level. Furthermore, some of these changes can be aggravated by an imbalance of certain amino acids. This emphasizes the importance of supplying amino acids in foods rather than in combinations which might be quite different from those usually encountered in food materials."

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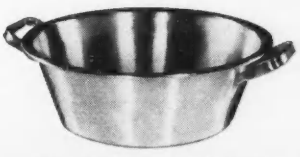

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NEW FRUIT AND ICE BOWL—No. 6915. The bowl of a million uses. As a server or for utility purposes. 5 qt. capacity.

THIRD ANNUAL A. D. A. PHOTOGRAPHIC CONTEST

The American Dietetic Association announces a contest for photographs showing on-the-job activities of dietitians and nutritionists. Anyone may enter. The contest opens February 15 and closes May 15, 1953.

Prizes will be cash awards

First	**$75**
Second	**35**
Third	**15**
15 Prizes	**5**

Rules:

1. The contest is open to the general public. CONTEST OPENS FEBRUARY 15 AND CLOSES MAY 15, 1953. No entry fee is required.
2. Any number of black and white glossy prints may be submitted by an entrant. Prints must be 8 x 10. No acknowledgement or receipt of entries will be sent, unless entrants enclose an addressed postal card to be signed and returned.
3. Subject matter is restricted to the life and activities of dietitians and nutritionists. The central figure should be a dietitian or nutritionist in a job or training situation. A close-up, action picture is preferable. The setting may be outdoor or indoor. When a white uniform is worn (it should be worn if the job situation requires one), all of the details concerning the uniform and other articles of apparel should be correct—i.e., uniforms long-sleeved and well-pressed; hair neatly dressed; no caps (dietitians in the armed services and Veterans Administration hospitals may be photographed with caps); no handkerchiefs in pockets; no conspicuous jewelry as earrings or large rings; conservative white shoes (no wedgies, no high heels, no ankle straps). IF POSSIBLE, CONSULT A MEMBER OF THE AMERICAN DIETETIC ASSOCIATION ON CORRECTNESS OF DETAILS SUCH AS DRESS, EQUIPMENT, AND SURROUNDINGS SHOWN IN THE PICTURE.
4. Prints may be mounted or unmounted.
5. Pictures which have been copyrighted or are under consideration for copyright by other organizations or publications are not eligible as contest entries.
6. Each print must be accompanied by a filled-in entry blank as provided here, or facsimile thereof. Please print or typewrite the information requested on the blank. Additional entry blanks are obtainable by writing the Contest Editor of The American Dietetic Association.
7. No entries will be returned until after announcement of the winners. Pictures which do not win prizes will then be returned, provided a self-addressed and stamped envelope, or addressed label and postage are contained in the same package in which each lot of entries is sent. Do not send postage separately for return. The Contest Editor cannot enter into correspondence of any kind regarding the entries.
8. Prize-winning prints, including all reproduction and promotional rights, BECOME THE EXCLUSIVE PROPERTY OF THE AMERICAN DIETETIC ASSOCIATION. All entrants whose photographs are under consideration for prizes will be required to FURNISH ORIGINAL NEGATIVES BEFORE PRIZES ARE AWARDED. All prize-winning negatives become the exclusive property of The American Dietetic Association. Written releases from all persons photographed must accompany the negatives. (Sample releases may be obtained by writing to the Contest Editor.)
9. The following persons will serve as judges:
   Nowell Ward, Associate of the Royal Photographers Society in London, and winner of photographic awards in the United States and Europe.
   Warren Wetherell, advertising consultant and designer.
   Beulah Hunzicker, President, The American Dietetic Association.
   Decisions of the judges will be final.
10. Address all entries to Contest Editor, The American Dietetic Association, 620 North Michigan Avenue, Chicago 11, Illinois. Final entries must be postmarked not later than midnight of May 15, 1953.
11. Prize winners will be announced in the August 1953 issue of the *Journal of The American Dietetic Association.*
12. While exercising the utmost care in handling entries, The American Dietetic Association assumes no responsibility for loss or damage of contest entries.

USE THIS ENTRY BLANK (PLEASE PRINT)

Contest Editor, The American Dietetic Association
620 North Michigan Avenue, Chicago 11, Illinois

Please enter the enclosed picture in The American Dietetic Association Photographic Contest for 1953.

NAME_____

Address _____

City _____ Zone _____ State _____

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Each one of your entries must be accompanied by a filled-in entry blank provided here, or a facsimile of it. Additional blanks may be obtained from the Contest Editor, The American Dietetic Association.

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News Notes

***Mademoiselle* Award to Dietitian.** Helen Cacheris of Washington, D. C., was one of ten "Young Women of the Year" who received 1952 Merit Awards from *Mademoiselle* in December. These awards are given to young women in their twenties and early thirties "who have already distinguished themselves in their fields and are expected to achieve even greater honors." Mrs. Cacheris, who is Chief, Menu Planning Branch, Office of the Quartermaster General, U. S. Army, was cited "for knowing the way to more men's hearts than any other woman." In her work, Mrs. Cacheris plans the master menus for the entire U. S. Army and Air Force.

Food Editor Wins Award. Sarah Merritt Wenger, Food and Home Editor of *The Miami Daily News*, was recently presented with a top award by the American Meat Institute at the Newspaper Food Editors' Conference in New York City. The award, called the "Vesta Award" in honor of the mythical Roman goddess of home and hearth fires, was one of four made by the Meat Institute. Mrs. Wenger in 1941 was one of five hundred nutrition experts called to Washington by President Roosevelt for the federal government's first and to date only conference on nutrition.

American Board of Nutrition. In April the American Board of Nutrition will meet to consider applications of candidates for certification as Specialists in Human Nutrition. Candidates deemed eligible for examination by virtue of their applications will be notified of the date, place, and procedure of the examination after the Board meeting. Application forms may be obtained from the Secretary, Dr. Otto A. Bessey, University of Texas School of Medicine, Galveston, and should be completed and returned not later than March 15. The complete list of Specialists in Human Nutrition, certified by the Board as of December 15, 1952, may be found in the February 1953 issue of the *Journal of Clinical Nutrition*.

International Congress on Home Economics. Queen Elizabeth of England has granted her patronage to the Eighth International Congress on Home Economics which will be held in Edinburgh from August 12 through 18. Plans are being made for more than a thousand delegates and others from about thirty countries. The Congress is sponsored by the Education Departments of the United Kingdom. The official languages of the Congress will be English, French, and German. An interpreter service will be provided.

Although this is the eighth Congress to be held since 1908, this is the first time Great Britain has been hostess. The aim of La Federation Internationale de l'Enseigement Menager is to encourage the development of home economics in every country, with the cooperation of the public authorities and educational, scientific, and professional organizations. The general theme of the Congress will be "Home Economics at the Service of Life: Its Contribution to Individual and Social Progress."

In plenary session, the Congress will deal with such subjects as the training of home economics teachers in different countries and practical methods in home economics teaching. Sectional meetings will provide for discussion on: help for the homemaker, at home and professionally employed; the international aspects of home economics; careers for which home economics training is a preparation; and home economics courses for adults.

For each afternoon a variety of excursions to places of scenic beauty and historic interest have been arranged, as well as visits to places of educational and specialized interst. An excursion by special train and steamer has been organized to enable delegates and members to see something of the beauty of the Clyde and the West Coast of Scotland. There will also be a civic reception with displays of Scottish country and highland dancing and, it is hoped, a garden party in the grounds of the Palace of Holyroodhouse.

Exhibitions concerned with home economics are being arranged during the period of the Congress. There will also be other exhibitions of general interest during the three weeks of the International Festival of Music and Drama, which opens immediately after the Congress ends.

The chairman of the Organising Committee is J. B. Frizell, C. B. E. The Congress fee is £8 10s, which includes full membership of the Congress, admission to receptions, entertainment, and exhibitions, and the cost of certain excursions, including the Grand Tour. Application forms may be obtained from the Secretary's Office, International Congress on Home Economics, 46 Moray Place, Edinburgh 3, Scotland.

National Conference on Trichinosis. A National Conference on Trichinosis was held in Chicago December 15, cosponsored by: the American Board of Veterinary Public Health, the American Medical Association, the American Society of Clinical Pathologists, the American Veterinary Medical Association, the Association of State and Territorial Health Officers, the Conference of Public Health Veterinarians, the U. S. Public Health Service, and the University of Michigan Phoenix Project. The program included the following speeches:

"Control of Trichinosis through Federal Meat Inspection"—Dr. A. R. Miller, Bureau of Animal Industry, Washington

"Low-Temperature Treatment of Pork" —Dr. D. L. Augustine, Harvard University, Boston

"Trichinosis in Man and Its Prevention" —Dr. S. E. Gould, University of Michigan and Wayne County General Hospital, Eloise

Leaflet on Emergency Feeding. The Civil Defense Committee of the Virginia Dietetic Association has recently prepared a three-page mimeographed sheet titled "Emergency Feeding for the Family." In it are listed foods which may be kept as a three-day emergency supply and a suggested menu for two meals to serve on the first day (when no heat is available) and three meals on each of the other two days, assuming heat to be available. This material is obtainable from the Virginia Office of Civil Defense, Richmond 19.

Encyclopaedia Britannica Films. Several human biology films have recently been released by Encyclopaedia Britannica Films Inc. They include such subjects as "Understanding Vitamins" (see the JOURNAL, page 990, October, 1952), "Antibiotics," "Allergies," "Obesity," and "Problems of Fat Formation." Further information may be obtained by writing the Public Relations Department, Encyclopaedia Britannica Films Inc., 1150 Wilmette Avenue, Wilmette, Illinois.

Advisory Appointment. Dr. L. E. Clifcorn, Director of Continental Can Company's fundamental research, has been appointed Chairman of the Panel on Food of the Committee on Equipment and Supplies of the Department of Defense Research and Development Board. Dr. Clifcorn will head the five-man panel which advises, directs, and gives technical guidance on research and development related to the production, processing, packaging, and service of food, with the exception of the nutritional aspects which are the concern of the Board's Committee on Medical Sciences.

Dr. Clifcorn is the author of the paper on low-sodium canned foods beginning on page 116 of this issue of the JOURNAL.

Statistics on Aging. *Fact Book on Aging*, recently published by the Committee on Aging and Geriatrics, Federal Security Agency, contains and interprets charts and tables on the characteristics, income, employment, living arrangements, and health of the over-sixty-five population of the U. S. Some figures are also given for the forty-five-to-sixty-four age class, because many problems of aging have their onset in this age. This sixty-two-page booklet may be obtained from the Government Printing Office, Washington 25, for 30 cents a copy.

Reports on Dietary Survey Methods. *Collection Methods in Dietary Surveys*,

All the flavor of vine-ripened tomatoes!

Here is the tomato soup you can always depend on for that natural, appealing flavor of fresh-picked tomatoes. LeGout Tomato Soup is always uniform, always rich, lively, seasoned to perfection. It is extremely easy to prepare, lets you serve a truly home-style soup in a jiffy! Use it with equal ease and economy for making either Regular or Cream of Tomato Soup. Unit cost is modest and you have accurate control for every serving. You'll find many other interesting ways to use this delicious LeGout specialty for chili, sauces and various tomato dishes, just as so many leading chefs are doing today. Ask the LeGout Man or your jobber for a demonstration.

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Tomato Soup: Simply add five parts water to one of LeGout. Heat and serve. *Cream of Tomato Soup:* Just add three parts milk and two of water to one of LeGout Tomato Soup, then heat and serve.

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FREE SAMPLE and RECIPE CARDS. Write today. See how you can use this delicious LeGout product in so many ways.

ANOTHER QUALITY PRODUCT OF *Fearn Foods Inc.*, FRANKLIN PARK, ILLINOIS

Southern Cooperative Series Bulletin No. 23, compares two dietary survey methods. In this technical report, the food list obtained by interview is shown to yield similar results to those obtained by the time- and money-consuming method of asking families to record weight of all food on hand at the beginning and end of a week and all food brought home during the week. However, it is emphasized that both the food record and food list are research instruments requiring skill in application. In the reported experiment, a sub-project of a study of comparative food consumption in three types of farming areas in the South, data on food consumption were obtained from comparable groups of families in South Carolina and Mississippi. The sub-project was cooperatively undertaken by six Agricultural Experiment Stations and the Bureau of Human Nutrition and Home Economics. This report may be obtained from the Bureau of Human Nutrition and Home Economics, Washington 25, or from the South Carolina Agricultural Experiment Station in Clemson.

Family Food Consumption in Three Types of Farming Areas of the South. II. An Analysis of Weekly Food Records, Late Winter and Early Spring, 1948 has been released as Southern Cooperative Series Bulletin No. 20. In it is reported work cooperatively conducted by home economists in the Agricultural Experiment Stations of Arkansas, Mississippi, South Carolina, Tennessee, and Virginia. Topics discussed include: quantities of foods used at home, money value of food, and nutritive value of diets. Four appendices contain, respectively, statistical tables, data on methodology, money values used for home-produced foods, and a glossary. Ninety-two tables and ten figures are included. Requests for copies should be addressed to the South Carolina Agricultural Experiment Station in Clemson.

Study on Bread Stuffings. "A Bacteriological Investigation of Bread Stuffings" is the title of the first issue of *Research Reporter*, a publication of the Consumer Service Department, American Institute of Baking. Covered in the report are: facts about food poisoning and food handling; the importance of temperature and time; a report of the investigation itself; and recommendations for the preparation and handling of stuffings, both moist and dry, and of stuffed turkeys.

Nutrition Education Helps. *Scholar Specials* is a cleverly illustrated, sixteen-page booklet, containing quantity recipes for macaroni, spaghetti, and noodle dishes, mostly entrées, to be used in the school lunchroom. These recipes were developed in the Testing Kitchen of the Wheat Flour Institute. Portion sizes are indicated for the main dishes.

A second booklet containing recipes for quick breads, yeast breads, main dishes, cookies, and desserts is also available. It is titled *Honor Roll Recipes in Large Quantity*. These recipes, too, were planned for school lunch use.

How to Eat Better for Less Money: A Lesson in Family Food-Money Management, fifth edition, is available for use in high school, college, and adult classes. Prepared in attractive color, this booklet uses charts liberally and also provides low-cost recipes. The principles of good nutrition and the "Basic Seven" are stressed. Functions and sources of nutrients are given in chart form, and a table of quantities of food for one week for seven different categories of activity or age is presented.

These three booklets are available from the Wheat Flour Institute, 309 West Jackson Blvd., Chicago 6.

New Offerings. Health Publications Institute, Inc., 216 North Dawson Street, Raleigh, North Carolina, has recently added to its list a four-part series of sixty-six teaching charts on food handling. Designed and illustrated by the New York State Health Department, the four parts are titled: "Good-Bye to Germs," "Plates to Please," "Safe to Serve," and "Tips to You." The entire series of 18 by 30 in., silk-screened charts costs $35.

Preventive Aspects of Chronic Disease, recently published by the Commission on Chronic Illness, is the official proceedings of the National Conference on Chronic Disease held in Chicago in March, 1951. The Conference was cosponsored by the National Health Council, the U. S. Public Health Service, and the Commission on Chronic Illness.

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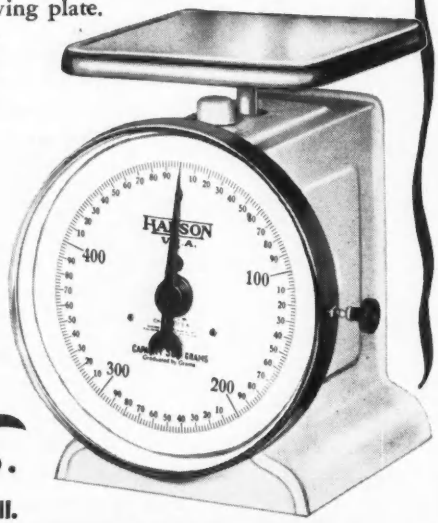

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Included in the volume are: reports of the general sessions, reports of the twelve working committees, the addresses given, and the summary statements, with revisions, on what is known about prevention of chronic disease. This 312-page book may also be obtained from Health Publications Institute. The cloth-bound edition is $3.50, and the paper-bound, $2.50.

Gertrude Spitz. Word has been received in the A. D. A. office of the death of Gertrude Spitz in Brookline, Massachusetts on December 4. Miss Spitz, an A. D. A. member since 1926, was a charter member of the Massachusetts Dietetic Association and one of its past Presidents. She had been Clinic Dietitian at the Beth Israel Hospital in Boston, and for many years had been Case Consultant in Nutrition, Public Welfare, also in Boston. She was the director of the first refresher course sponsored by a state association, which was held in Boston fifteen years ago.

Rose Mary Harrington. The A. D. A. office has been notified of the sudden death of Rose Mary Harrington in Wilkes-Barre, Pennsylvania, on November 5. Miss Harrington had been a member of the dietary staffs of Hahnemann Hospital, the Graduate Hospital, and the Einstein Medical Center, Northern Division, all in Philadelphia, and had been an A. D. A. member since 1950.

Food Value Charts Revised. The twelve charts on food values of the Philadelphia Child Health Society have been revised. Changes include the addition of four new charts on: calories in snacks, calories and calcium in dairy products, breakfasts, and lunches. Food values of yogurt, blackstrap molasses, and wheat germ have been added on some of the charts, because of the current interest in these specialty foods. The Recommended Dietary Allowances have also been included. The charts were prepared by a committee of nutritionists in Philadelphia and in the Nutrition Division of the Pennsylvania Department of Health. The charts may be obtained for $1.35 a set from the Fife-Hamill Memorial Health Center, 7th and Delancey Streets, Philadelphia 6.

Refrigeration Preserves Tangerine Flavor. Success is reported by the U.S. D.A. in its efforts to extend the life of tangerines in retail stores. Tests made by specialists in handling, transportation, and storage at the Plant Industry Station, Beltsville, Maryland, show that the ordinary three-day life of the unrefrigerated fruit in stores can be extended to more than a week under refrigeration. After the experiment, refrigerated and unrefrigerated tangerines were judged by a taste panel which found the well-refrigerated fruit to be of "pleasing flavor" and the others "flat." Refrigeration also aided in preserving an attractive appearance.

Booklet on Analytical Balances. *Care and Use of Analytical Balances* is the title of a new, thirty-two-page informative booklet recently published by Christian Becker, Division of Torsion

Easy Pour Pelican Spout

Convenient Pelican Spout on every 5 gallon can of Wesson Oil makes it easy to pour!

The easy-to-open screw cap provides complete protection to contents after opening.

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Balance Company, Clifton, New Jersey. The booklet gives information on proper location, assembling, and mounting the balance as well as discussing the historical development of the precision weighing and the techniques applied in determining weight and checking sensitivity and operation of a balance. General precautions to observe in the care and use of balances are also listed. Single copies of this booklet may be obtained gratis, and quantity orders from schools and laboratories will be filled at cost on request to Christian Becker.

News of State Associations

California Dietetic Association. The *Bay Section* of the California Dietetic Association met at Herrick Memorial Hospital, Berkeley, in November. Keith K. Kirstein, Sacramento, discussed electricity vs. gas for institutional cookery and accompanied his talk with a demonstration. Members also toured the Herrick Hospital's newly remodeled and equipped kitchen.

District of Columbia Dietetic Association. Members of the District of Columbia Dietetic Association met in November to hear Kathryn McHenry, Veterans Administration, Washington, discuss the highlights of the International Congress of Dietetics in Amsterdam last July. Miss McHenry's talk was accompanied by slides.

SAVORY SPEEDS SERVICE BECAUSE IT'S SELF-UNLOADING!

You could serve a mile-high stack of toast made the Savory way, yet never cause a toast bottleneck! The toaster is always ready for loading because its continuously moving conveyor unloads automatically, thus speeding up service of crisp, delicious toast – without fuss or bother.

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Officers for 1952–53 of the District of Columbia Dietetic Association are: President, Dorothy L. Bovee, American Red Cross; President-Elect, Marjorie Beattie, Chesapeake & Potomac Telephone Company; Secretary, Helen J. Cacheris; and Treasurer, Julia Chwalek Comeau.

Kansas Dietetic Association. Community Nutrition Section activities of the Kansas Dietetic Association for 1951–52 consisted of four projects. Two manuals were prepared for the Kansas Board of Health, "Food Budgets for Children in Foster Care. Part I—For Boarding Homes and Day Care Centers," and "Part II—for Residential Institutions and Group Care Centers." The *Kaw Valley Dietetic Association*, the group appointed to work with the Community Nutrition Section Chairman, set up daily menu patterns for children to be used by parents and day-care centers in conjunction with noon menus served in the centers. Also initiated was a publicity program regarding adequate standards for children in foster care in Kansas. This included newspaper articles and editorials, talks to various community groups, and group discussions. The final project was the offering of consultation service on nutrition and dietary problems to maternity homes, small hospitals, and children's institutions.

Michigan Dietetic Association. Members of the Michigan Association met in November at Western Michigan College of Education in Kalamazoo. Dr. Marshall A. MacDonald, Bronson Methodist and Borgess Hospitals, Kalamazoo, discussed "Diagnosis and Treatment of Allergies," and Dr. C. G. Callander, of the same hospitals, talked on "Nutrition in Acutely and Chronically Ill Patients." Dr. James C. Lawrence, Upjohn Company, Kalamazoo, spoke on "New Medications." The meeting closed with a tour of the new kitchens at Bronson Methodist Hospital.

Nebraska Dietetic Association. The *Omaha Dietetic Association*, at the invitation of the Midwest Clinical Association, arranged an exhibit for the latter association's convention held in Omaha in November. Examples of a breakfast, noon meal, and evening meal for a 1200-calorie diet were displayed, utilizing both fresh and frozen foods. Copies of the reducing diet were available to visitors, as well as a mimeographed illustrated booklet listing the number of calories in popular "snack" foods.

Pennsylvania Dietetic Association. The Scholarship Loan Fund of the Pennsylvania Dietetic Association has now been renamed the Frances L. Swenson Scholarship Loan Fund. During the late Miss Swenson's administration as President of the Pennsylvania Association, the Scholarship Loan Fund was established. At the A. D. A. annual meeting in October, Miss Swenson's alumni class of the University of Illinois donated $24.50 to be added to the Fund.

Officers for 1952–53 of the Pennsylvania Dietetic Association are: Presi-

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The *Lehigh Valley Dietetic Association* met in September to hear Dr. P. Blanchard, who has an extensive international collection of bells, present a talk and display titled "Food Rings a Bell." The Association has also formulated plans to participate in the civil defense program of Lehigh County. Emergency cooking and other survival feeding procedures will be taught to eight women from each of the county's two hundred churches. This Association will also cooperate with the Bethlehem and Allentown Health Fairs by exhibiting.

The *Northeastern Pennsylvania Dietetic Association* in September heard John Uhl discuss "Savings and Investments for Women." The program for the October meeting was a talk on "Opportunities for Employment in Later Years" by George Chisnell. The film, "Weight Reduction through Diet," was also shown. In November, slides and a panel discussion on "Careers in Dietetics" comprised the program. The January and February meetings were divided into two groups, one in Wilkes-Barre and the other in Scranton. In January one group was shown the film, "What Is Your Shopping Score?" while the other saw filmstrips on diabetes. The procedure was reversed in February.

Texas Dietetic Association. The *Dallas Dietetic Association's* Christmas meeting, on December 8, featured Mrs. George Mayer's talk on "The History of the Bells."

Association Activities

Representatives. As A. D. A.'s alternate representative, Dr. Thelma Porter attended the meetings of the *American Association for the Advancement of Science* held in St. Louis, December 26 to 31. During this conclave, she also represented us at the two meetings of the A. A. A. S. Council. Dr. Helen S. Mitchell is A. D. A.'s official representative.

The Association was invited to send a representative to the *National Conference on Trichinosis* in Chicago, December 15.

Vera W. Walker was the official representative at the third *Institute on Geriatrics* conducted at the University of Florida, January 26 and 27. The theme of the meeting was, "Florida Plans for a Healthy Senior Citizen." Mrs. Walker has represented the Association at the previous institutes.

Coordinating Cabinet Meeting. The Finance Committee, Executive Board, Coordinating Cabinet, and Council meetings are being held the week of February 9 in Chicago.

A. H. A.–A. D. A. Joint Committee. Vivian L. Laird, Winifred H. Erickson and Cora E. Kusner will attend the joint committee meeting of A. H. A.–A. D. A. February 16 in Chicago. Grace Bulman, Beulah Hunzicker, Mable MacLachlan, and Ruth M. Yakel will serve as ex-officio members.

Other Meetings. The *Membership Requirements Committee* has held its second meeting since October.

Lottie Crecilius, Chairman of the *Committee to Study Auxiliary Workers*, has called another meeting of the committee for February 15, in Chicago.

E. Evelyn Smith, Chairman of the *Committee to Study the Professional Position of the Dietitian*, will also meet with her committee on February 13 in Chicago.

A. D. A. Publicity. Publications of the Association have been widely reviewed in 1952 in popular magazines and journals of allied professions. *Dietetics as a Profession* has been reviewed in eighteen periodicals since January 1952, and the newer *Eating Is Fun* has been listed and commented on thirteen times since its appearance in May 1952.

News of Advertisers and Exhibitors

Employers and employees in the mass feeding industry are invited to enter the sixth annual "Idea Contest" sponsored by *General Foods Corporation*, open until

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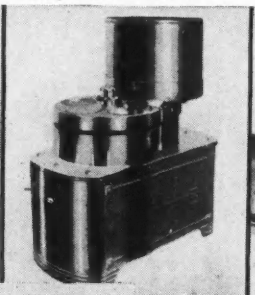

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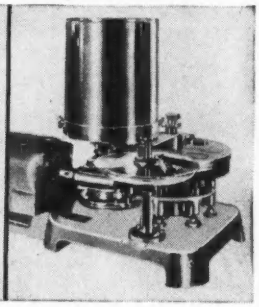

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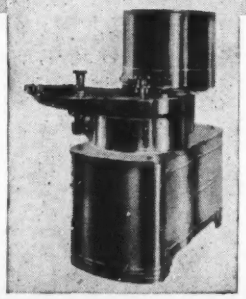

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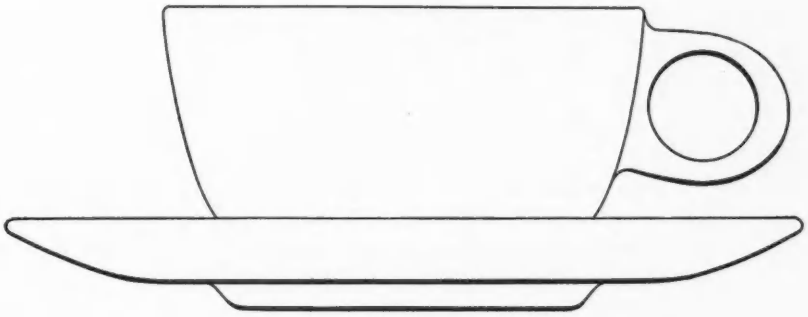

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Follow these six basic steps and your beautiful, break-resistant cups made of MELMAC melamine will keep their sparkle, stay new and stain-free through thousands of servings . . . and the low replacements you now enjoy will drop even lower.

❶ **SCRAPE AND PREFLUSH** as soon as possible after use

❷ **RACK OPENLY** for efficient washing, faster air-drying

❸ **WASH** in water 140°-160°F, with a top quality detergent in the concentration recommended by the manufacturer. The installation of an automatic feeder to control the detergent concentration is strongly recommended

❹ **RINSE,** allowing machine ample time to rinse thoroughly (usually 170°-190°F for at least 10 seconds)

❺ **LET STAND** in racks until dry

. . . and at regular intervals a dip that licks staining before it starts:

❻ Use a discoloration-remover developed for this purpose (*do not use abrasives or scouring powder*), and follow the recommendations of suppliers of these cleansers, typical of which are these**

DIP-IT*—Economics Laboratory

M-E CLEANER*—Maid-Easy Cleansing Products Corporation

OZO*—Turco Products, Inc.

SAR-7*—Antiseptol Company

The method is simple . . . the results are sure . . . the long service-life is extended indefinitely . . . and the savings are multiplied over those you previously enjoyed with ordinary care of MELMAC dinnerware.

GET THOSE *EXTRA* SAVINGS. MAKE THE *BEST* USE OF YOUR MELMAC DINNERWARE. THE BREAK-RESISTANCE IS THERE. THE BEAUTY IS THERE. PROTECT THAT BEAUTY THROUGH THESE FEW SIMPLE PRECAUTIONS AND YOU'LL ENJOY A *HIGH* IN *LOW* REPLACEMENT COSTS.

*T. M. Reg. U. S. Pat. Off.

**Similar compounds working on same principles will doubtless achieve same beneficial results.

AMERICAN Cyanamid COMPANY
PLASTICS DEPARTMENT
30-57 Rockefeller Plaza, New York 20, N.Y.

In Canada: North American Cyanamid Limited, Royal Bank Building, Toronto, Ontario, Canada

February 28. Thirty-two prizes, divided equally into employer and employee classifications, will be awarded. The term "mass feeding" includes restaurants, hotels, hospitals, schools, colleges, and other institutions feeding the public. Employers may enter by submitting a written statement of not more than 150 words on: "As the 'Boss,' here are three things I have done to cut operational costs through improved purchasing practices, or more efficient use of labor, or reduction of fixed overhead expenses." Employees may qualify for their separate contest by writing a statement of similar length on: "If I were 'Boss,' here are three things I would do to cut operational costs through improved purchasing practices, or more efficient use of labor, or reduction of fixed overhead expenses." First prize winner in each group will receive an all-expense-paid trip for two people to the 1953 National Restaurant Association convention in Chicago from May 11 through 15, including travel fares and $200 in spending money or 100,000 prize points. All winners will have the opportunity to take their prize money in the form of General Foods prize point coupons, should they desire. And all who enter the contest will receive 85 prize points. Entry blanks may be obtained from General Foods Institution salesmen or by writing the General Foods Institution Department, 250 Park Avenue, New York 17.

Sunkist Growers have recently announced the development by several packers of a new canned tomato aspic made with two ingredients of citrus origin: a modified citrus pectin, scientifically termed low methoxyl pectin, and lemon juice. Low methoxyl pectin produces an entirely different type of gel from that of gelatin, commonly used in aspics. Canned tomato aspic made with the new pectin may be liquefied by heat and regelled with almost no cooling; it gels at about 130°F. It is an all-fruit product and, therefore, usable by those who do not use products of animal origin in such recipes as tomato aspic.

Aatell & Jones, Inc., has begun a "Holiday Tray Appointment Club" which enables hospitals and other institutions to buy items such as tray covers, place mats, dessert doilies, matching napkins, nut cups, flat skewers, and miniature menu folders either for individual holidays, in various holiday groups, or for a year's holiday requirements. As a member, an institution places only one order for annual requirements and receives but five shipments. The holidays included in the five deliveries are: Group 1—St. Valentine's Day, Washington-Lincoln Birthday, St. Patrick's Day, and Easter; Group 2—Mother's Day, National Hospital Day, Memorial Day, and Father's Day; Group 3—Independence Day and Labor Day; Group 4—Hallowe'en, United Nations Day, Armistice Day, and Thanksgiving; and Group 5—Christmas and New Year's.

Aatell & Jones, Inc., has also announced that Sister M. Ethelburg, O.S.B., Professor of Dietetics, Mount St. Scholastica College, Atchison, Kansas, has been awarded the $25 prize as winner of its contest on "Why I believe colorful tray covers are an essential element in food tray service." The contest was open from November 12 to December 13, 1952 to all who registered at the Aatell & Jones booth at the A. D. A. Annual Meeting in Minneapolis.

General Mills, Inc., has produced a new 18-min., 16-mm. sound and color film titled "Food as Children See It." This is a companion piece for the earlier film, "The School that Learned to Eat" (1948). The new film explains the common problems involved in child feeding and makes suggestions for solving them. The film is available for loan on request, for postage charges only. A print of the film may be purchased for $100.

General Mills has also published a new booklet titled "Aids to a Health and Nutrition Program for School and Community," describing the General Mills nutrition education program, its principles, and its areas of activity. In it are included suggestions for establishing a nutrition education program in the school and community, developing it, and evaluating it. Also listed in the booklet are the teaching aids offered by General Mills, such as: booklets; readers for primary grade school children; teaching posters; literature for the high school, college, and adult levels; and evaluation devices.

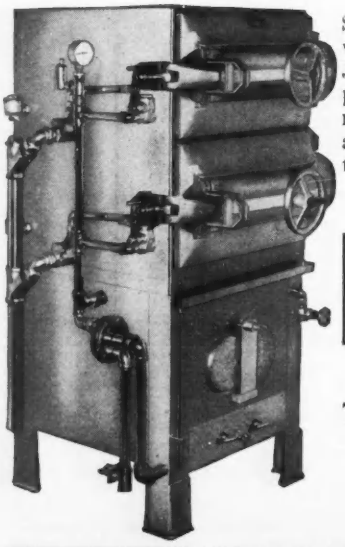
The *Cling Peach Advisory Board* has recently released two attractive recipe booklets. The first, "20 Easy New Peach Recipes," is only 3 by 5 in. in size when

If you want better cooking at lower cost—you want *steaming!*

Labor comes high these days. Food itself comes high.

The food service operator is caught in this double pressure. What to do? One thing you *can* do is to cut cooking *costs* by steaming many foods with Steam-Chef or Steamcraft Cookers. By this method you save on cooking time, labor cost, food waste, and fuel. Your steamer is always ready to go. It takes less personal attention. It substantially reduces handling and cleaning time for pots and pans. Nothing burns or scorches in a steamer. Food shrinkage is reduced and there is less waste from cooking *too much* at one time. Besides, steam cooked food is superior in taste, appearance, color, texture, and nutriment.

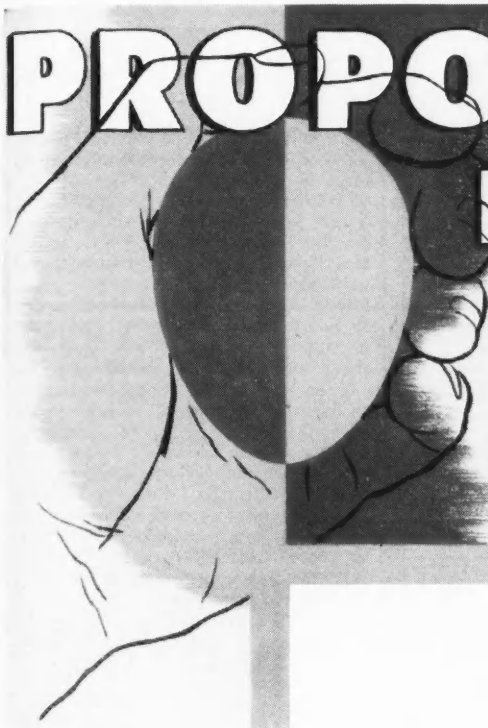
Now more than ever, when every cent of kitchen economy is vital, steaming is just *common sense* in any kitchen, large or small. Let us tell you more about it. Our booklet "For Better Steaming" gives the how and why.



Steam-Chef standard steamers are made with 2, 3, or 4 compartments. Steamcraft Junior models are made with 1 or 2 compartments, for counter or table use or mounted on their own bases. All models are furnished for direct steam, gas or electric operation. Write for full details.

"The Winner" **Educational 24-minute sound, color movie. Gives dramatic steam cooking demonstration. Available on request for showing to groups.**

The CLEVELAND RANGE Company
"The Steamer People"
3333 Lakeside Avenue
Cleveland 14, Ohio



PROPORTIONED BY NATURE

To Supply Biologically Complete Protein

Eggs For Special Therapy
Eggs For Daily Use

In an evaluation of protein for therapeutic uses as well as for the diet of people of all ages, it should be recognized that some proteins, because of their biological completeness, are more effective nutrients than others. Eggs supply such complete protein. They are easy and convenient to use...and economical.

Eggs supply all the essential amino acids necessary for growth and body maintenance. In fact, whole egg protein is often used as a standard in evaluating the nutritive value of other proteins.

Metabolic and nutritional studies continue to reveal eggs as contributors of food values for abundant health, good growth and body repair.

APPROXIMATE PERCENTAGE OF AMINO ACIDS IN EGG PROTEINS[1]
(Calculated to 16% of nitrogen)

Arginine	7.0%	Cystine	2.1%
Histidine	2.4	Methionine	4.0
Lysine	7.5	Threonine	4.9
Tyrosine	4.5	Leucine	9.2
Tryptophane	1.6	Isoleucine	7.7
Phenylalanine	6.3	Valine	7.8

[1] Block, R. J. and Bolling, D.—The Amino Acid Composition of Proteins and Foods, Second Edition, C. C. Thomas, Springfield, Ill., 1950.

ACCEPTED COUNCIL ON FOODS AND NUTRITION AMERICAN MEDICAL ASSOCIATION

This seal signifies that all statements herein pertaining to nutrition have been found acceptable by the Council on Foods and Nutrition of the American Medical Association.

POULTRY AND EGG NATIONAL BOARD
185 N. WABASH AVE., CHICAGO 1, ILL.

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A variety of DIAFOODS
controlled low sodium
Soup Bases!

U. S. PATENT NO. 2,500,919

Accepted by the Council on Foods and Nutrition of the American Medical Association

Per 6 oz. Serving	Fat Grams	Protein Grams	Carboh. Grams	Total Calories	Milligrams of Sodium per 6 oz. Serving
CHICKEN SOUP	1.0	0.56	3.2	26.3	1.5
POWDERED CONSOMME	neglig.	0.48	0.29	3.2	0.6
BEEF SOUP	0.85	0.85	3.2	25.0	12.8
JELLIED CONSOMME	neglig.	3.15	0.21	13.7	1.4

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Write for Diafood pamphlet giving complete analysis on low sodium and other Diafood products.

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TRADE MARK

for SPECIAL DIETS

BIGGER **Variety!**
FINER **Flavor!**
GREATER **Economy!**

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Blue Boy
DIETETIC VEGETABLES
NO SALT OR SUGAR ADDED

ANALYSIS of FOOD VALUES PRINTED ON EACH LABEL

- Whole Kernel Corn
- Cream Style Corn
- Corn on the Cob
- Peas—Spinach
- Peas and Carrots
- Diced Carrots
- Cut Green Beans
- Cut Wax Beans—Lima Beans
- Diced Beets—Sliced Beets
- Whole Beets—Tomato Juice
- Apple Sauce—Tomatoes

IN 8 oz. & No. 2 CANS AT YOUR GROCERS

Write Haxton Foods, Inc., Oakfield, N. Y. for brochure with analysis and product data.

NEW...the DIET BOOK of the YEAR

The first complete handbook for 7 major classes of restricted diets. Written with a lively concern for diet success. Over 1,200 new delicious recipes . . . 50 indispensable picture charts and other valuable aids.

1. **WEIGHT-REDUCING**—Hundreds of interesting low-calorie dishes. Calorie count printed above each recipe.
2. **LOW SODIUM**—A wealth of key recipes. Sodium count printed above each recipe.
3. **DIABETES**—Recipes and menus presented in cooperation with American Diabetes Ass'n. All recipes detailed (carbohydrates, etc.) . . . food exchanges shown.
4. **HIGH RESIDUE**—Dishes to help curb the laxative habit; correct atonic constipation.
5. **LOW FAT, LOW CHOLESTEROL**—Appetizing recipes for the arteriosclerotic patient.
6. **BLAND**—For ulcer and colitis patients.
7. **WEIGHT-GAINING**—High calorie recipes to coax extra weight and energy.

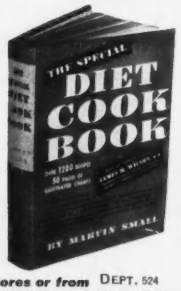
THE SPECIAL DIET COOK BOOK
By MARVIN SMALL

Introduction by James R. Wilson, M.D.
Secretary, Council on Foods and Nutrition American Medical Association

512 Pages
OVER 1,200 RECIPES
50 Illustrated CHARTS
$2.95

A lifetime reference book. A "gold mine" of diet data.

Simplifies diet menu planning. Insures diet success.



At bookstores or from DEPT. 524
GREYSTONE PRESS, 100-6th Ave., N. Y. 13, N. Y.

folded and contains recipes for salads, desserts, garnishes, and beverages. The second, "How Famous California Chefs Use Canned Cling Peaches," is a larger, twenty-nine-page booklet listing the peach recipes of chefs from twenty-five prominent California eating places. Most of the recipes in this booklet are in large quantities.

Mealpack Corporation is now offering a new Model HC Cart, which is convertible for three uses. For between-meal nourishments, it may be equipped with beverage dispensers and an insulated cold box. It may also be equipped as a hospitality or hostess cart, thus putting the hospital's gift shop and snack bar on wheels. In addition, for patients' tray service, it may be equipped to operate "in tandem" with Mealpack open tray carts. Optional accessories are available to widen the unit's use.

Four new publications on baking have been issued by the Industrial Products Department of *The Borden Food Products Co.* The titles are: "Home-Type Formulas for Cake-Bakers" (showing use of Borden's Parlac whole milk powder); "Specialty Breads and Basic Sweet Doughs" (with directions for use of Breadlac, a Borden nonfat dry milk solid); "Borden's Prize Collection of Fruit Juice Formulas" (using Borden's powdered lemon juice); and "Soft Pies—Facts and Formulas." Formulas in all cases are scaled for quantity production.

American Can Company has recently developed the first glass "duplex" pressure package. It is a self-dispensing package in which a glass container for holding household products under pressure is surrounded, for protection from explosions due to dropping, by a fiber housing with metal ends. This achievement was done at the instigation of Zonite Products Corporation which will market Larvex in the new container this spring. To prove the safety of the new container, drop tests were used.

Edward Don & Company's expansion program now includes the recent acquisition of the businesses of Kress Bakery Equipment, Inc., and the Jones Equipment Corporation, both of Miami.

Universal Dishwashing Machinery Company has a new Model "MM" two-tank extra capacity automatic dishwashing machine, which will handle 5000 dishes per hour. Dishes are pre-sorted before washing. Separate power wash and power rinse sections with water at different temperatures, plus a final 180° sterilizing rinse, leave the dishes ready for re-use. A 12-in. prewash section can be built into a new machine; a high-speed scrapper drawer can be built into the regular wash tank; and the Universal Model "PC," high-speed scrapper machine can be directly connected.

Another new model, the A-4, just brought out by *Universal* provides for the handling of 15,000 dishes per hour. A pre-scrap section, a power wash section, two power-rinse sections, and a final sterilizing section are features of this automatic machine. Operating on the rack principle, all table ware is pre-sorted before washing, and soil from dishes is thoroughly washed and reduced to a minimum in the pre-scrap section.